Annual Groundwater Monitoring and Corrective Action Report

Texas Municipal Power Agency Gibbons Creek Steam Electric Generating Station Anderson, Texas

January 30, 2018

3755 S. Capital of Texas Highway
Suite 375
Austin, TX 78704

Table of Contents

List of Figures

List of Tables

List of Appendices

1. Introduction

The Texas Municipal Power Agency (TMPA) Gibbons Creek Steam Electric Station (GCSES) is located at 12824 FM 244 Road, Anderson, Texas 77830 (Figure 1.1). The GCSES began operating as a 405 Megawatt (MW) capacity power plant burning lignite from the adjacent Bryan Lignite No. 1 mine in 1983. In 1996, the GCSES converted to Powder River Basin coal and the lignite mine was closed.

The GCSES currently operates one Coal Combustion Residuals (CCR) landfill identified as the Site F Landfill (SFL), and two CCR surface impoundments, the Scrubber Sludge Pond (SSP) and Ash Ponds (AP), that are subject to regulation under 40 CFR 257 Subpart D. The locations of the CCR units are shown on Figure 1.2.

The SFL, located northeast of the power generating plant, was constructed in 1990, is approximately 114 acres and receives solid CCR generated by the GCSES. The SSP was constructed in 1982 and began receiving CCR in 1987. The SSP is approximately 7.4 acres in size and 20 feet (ft.) deep. The AP consists of three interconnected ponds that began operation with the start-up of the GCSES in 1987. Each pond is approximately 260 ft. wide, 1,800 ft. long and 20 ft. deep.

This annual groundwater and corrective action report has been prepared to meet the requirements of 40 CFR 257.90(e). This is the initial annual report and there are no corrective action programs for CCR units underway at the facility; therefore, only the status of the groundwater monitoring program is summarized. This report covers the period January 1, 2016 through December 31, 2017.

This report contains a discussion of the installation of groundwater monitoring networks for the CCR units, summarizes the baseline groundwater monitoring events, presents groundwater analytical results, and discusses groundwater flow directions and rates at the CCR units. This report also presents a discussion of the statistical evaluations completed as of the end of 2017.

2. Groundwater Monitoring Networks

2.1 Monitoring Well Installation and Rehabilitation

An initial review of GCSES's existing hydrogeologic and groundwater monitoring data was completed in early 2016 to preliminarily evaluate the location of the uppermost aquifer at each of the CCR units. Following the initial review, a limited field investigation consisting of drilling stratigraphic borings and the installation of five monitoring wells was completed in March 2016. This investigation provides additional aquifer information for use in the final design of the CCR groundwater monitoring networks. Monitoring well locations and well designs were developed and monitoring wells and piezometer were installed in May and June 2016 at the SFL, SSP, and AP. Subsequently, after review of five rounds of groundwater monitoring data, one additional monitoring well was installed at both the SFL and AP in May 2017 to enhance the groundwater monitoring network. The final groundwater monitoring network is comprised of monitoring wells which are utilized for both water level measurements and groundwater sampling, and piezometers which are utilized for water level measurements only.

The new groundwater monitoring wells and piezometers were installed using a truck-mounted hollow stem-auger drilling rig equipped with 8-5/8 in. O.D. (outside diameter) augers. The monitoring wells and piezometers were constructed with 2-inch diameter factory-sealed PVC well screen and casing. The screen sections have 0.010" slot size and the length of the screen was either five or 10 feet, as determined by well-specific hydrogeologic conditions. Well screen and casing sections were joined together by flush-threaded joints with an O-ring seal. The wells and piezometers were completed with a bottom cap. A 20/40-grade sand filter pack

was installed to a depth extending two to three feet above the top of the screen. A two-foot thick annular seal consisting of hydrated bentonite chips or pellets were placed directly above the filter pack. The remaining annular space (to within approximately 12 inches of the surface) was filled with a cement/bentonite grout. All wells and piezometers were finished at the surface with an above-grade, lockable, steel protective pipe and cap set in an approximately four-foot square concrete pad.

After installation, the wells and piezometers were developed by pumping groundwater using a submersible pump until the water was clear and sediment free. During development, the pump was moved up and down within the well screen as needed to ensure development of the full screen length.

After a preliminary data review indicated that additional water quality and water level data was needed at the SFL CCR unit to meet the requirements of baseline sample collection, pre-existing monitoring wells were incorporated into the groundwater monitoring network. These wells were installed by Black and Veatch during pre-SFL construction studies and were periodically sampled between 2010 and 2014. The Black and Veatch wells are labeled as “MNW” wells. Well construction details were examined and the wells were inspected in the field to assess usability for monitoring. Repairs were made to the wells on an ‘as needed’ basis. The “MNW” wells are used for water level monitoring and/or groundwater sampling as identified in Section 2.2 below.

Well and piezometer construction details for groundwater monitoring networks at the CCR Units are summarized in Table 2.1. Borehole and Completion Logs are included in Appendix A.

2.2 Site F Landfill Groundwater Monitoring Network

The SFL is underlain by stratified, heterogeneous layers of clays, silts, and sands with varying thicknesses. Sandstone was observed at some boring locations as well. The uppermost aquifer is considered confined to semi-confined and generally encountered at depths of 15 to 35 feet below land surface. The elevations of screened intervals in monitoring wells completed in the uppermost aquifer range from approximately 250 feet to 220 feet above mean sea level (amsl). The screened intervals are generally completed in silty sands (SM) with intervals of clayey sands and silts.

The general groundwater flow direction inferred from site data obtained prior to the installation of the CCR groundwater monitoring network was primarily northeast to southwest. Downgradient wells were placed at the unit boundary based on this information. The SFL monitoring network is illustrated on Figure 2.1 and described as follows:

- Background Monitoring Well: MNW-18
- Downgradient Boundary Monitoring Wells: SFL MW-2, SFL MW-3, SFL MW-4, SFL MW-5, SFL MW-6, SFL MW-7, and MNW-15
- Piezometers (water levels only): MNW-11, MNW-17, MNW-16

2.3 Scrubber Sludge Pond Groundwater Monitoring Network

The SSP is underlain by interbedded silty and sandy clays, clay, clayey sands and silty sand. Hard sandstone intervals are intermittently present, as are thin layers of lignite or lignitic silts. The uppermost aquifer is considered confined to semi-confined, and generally encountered at depths of 30 to 40 feet below ground surface. The elevation of monitoring well screened intervals in the uppermost aquifer ranges from approximately 240 ft. above mean sea level (amsl) to 220 ft. amsl. The screened intervals are generally completed in silty sands (SM) and sandy clay (CH).

The general groundwater flow direction at the SSP based on site data at the time of the monitoring well network installation indicated that a groundwater divide exists between the SSP and the adjacent AP. The general groundwater flow direction from northeast to southwest across the SSP was used to locate downgradient wells on the unit boundary. The SSP monitoring network is illustrated on Figure 2.2 and described as follows:

- Background Monitoring Well: SSP/AP MW-1 (used as background for both The AP and SSP networks)
- Downgradient Boundary Monitoring Wells: SSP MW-2, SSP MW-3, SSP MW-4

2.4 Ash Ponds Groundwater Monitoring Network

The subsurface stratigraphic units at the AP are similar to those found beneath the adjacent SSP and groundwater is also considered confined to semi-confined, and generally encountered at depths of 30 to 40 feet below ground surface. The screened intervals are generally completed in in silty sands (SM) and sandy clay (CH).

The general groundwater flow direction at the AP based on site data at the time of the monitoring well network installation indicated a general groundwater flow direction from west to east across the AP. This information was used to locate downgradient wells on the unit boundary. The AP monitoring network is illustrated on Figure 2.2 and described, as follows:

- Background Monitoring Well: SSP/AP MW-1 (used as background for both The AP and SSP networks)
- Downgradient Boundary Monitoring Wells: AP MW-1D, AP MW-3, AP MW-4, AP MW-5
- Piezometers (water levels only): AP PZ-1, AP PZ-2, AP PZ-3, AP PZ-4

3. Groundwater Monitoring Events Summary

Groundwater monitoring events completed during 2016 and 2017 consisted of collection of eight baseline groundwater quality samples in accordance with 40 CFR 257.94(b). The well locations relative to each CCR unit, number of samples collected, and sampling dates are summarized in Table 3.1 for the SFL, Table 3. 2 for the SSP, and Table 3.3 for the AP.

The expansion of the groundwater monitoring network at the SFL discussed in Section 2.0 is noted in Table 3.1 which indicates sampling of wells MNW-18, SFL MW-7, and MNW-15 was initiated in May 2017.

Groundwater monitoring was completed in accordance with the methods and procedures documented in the Field Sampling Plan dated October 16, 2017. Field data sheets completed during each of the sampling events are included in Appendix B. Laboratory analytical reports can be found in Appendix C.

4. Groundwater Monitoring Data Summary

4.1 Groundwater Flow

As required by CCR regulations, water levels were measured in monitoring wells prior to the collection of groundwater samples. Water levels were also measured in all monitoring network piezometers. The measured water levels were subtracted from surveyed top-of-casing (TOC) elevations to develop potentiometric surface elevation maps for the CCR units. These maps were used to interpret groundwater flow directions and

gradients. Information on groundwater gradients and hydraulic conductivity of subsurface geologic units was used to calculate groundwater flow rates using the following formula:

$V = Ki\phi$

Where:

V = average linear velocity (ft./day)

K = hydraulic conductivity (ft./day)

i = hydraulic gradient (ft./ft.)

ϕ = effective porosity (%)

4.1.1 Site F Landfill

Groundwater level measurements for the SFL monitoring wells are included in Table 4.1. Two complete rounds of water level measurements were collected at the SFL after the expansion of the monitoring network in May 2017. These measurements were completed on June 12, 2017 and August 22, 2017. Potentiometric surface maps for these sampling events are included as Figure 4.1 and 4.2, respectively.

Groundwater flow patterns are similar for the two dates with a general groundwater flow gradient from northeast to southwest. Additional flow directions to the northwest and southeast in the vicinity of the landfill are observed due to an apparent groundwater divide that trends from northeast to southwest.

The average linear velocity of groundwater flow at the SFL is 0.0012 ft./day, or 0.44 ft./year. Groundwater flow velocity was determined using an estimated hydraulic conductivity value of 0.028 ft./day based on observed grain sizes in the screened intervals, a calculated hydraulic gradient of 0.011 ft./ft., and an estimated effective porosity of 25%.

4.1.2 Scrubber Sludge Pond

Groundwater level measurements for the SSP monitoring wells are included in Table 4.2. Groundwater elevations were generally consistent during the eight groundwater monitoring events. Groundwater levels varied by less than one foot in most wells. Potentiometric surface maps are included for June 12, 2017 (Figure 4.3) and August 22, 2017 9(Figure 4.4).

Based on the potentiometric surface maps, the groundwater flow direction in the vicinity of the SSP is southwest.

The average linear velocity of groundwater flow at the SSP is 0.001 ft./day, or 0.365 ft./year. Groundwater flow velocity was determined using an estimated hydraulic conductivity value of 0.028 ft./day, the calculated hydraulic gradient of 0.009 ft./ft. and an estimated effective porosity of 25%.

4.1.3 Ash Ponds

Groundwater level measurements for the AP monitoring wells are included in Table 4.2. Groundwater elevations were generally consistent during the eight groundwater monitoring events. Groundwater levels varied by less than one foot in most wells. The potentiometric surface maps included for the SSP also illustrate the potentiometric surface at the AP on June 12, 2017 (Figure 4.3) and August 22, 2017 (Figure 4.4).

The groundwater flow direction within the AP is generally east with a north-easterly flow direction at the north end of the AP. The average linear velocity of groundwater flow to the east at the AP is 0.001 ft./day, or 0.32

ft./year. The groundwater flow in the eastern direction was calculated using an estimated hydraulic conductivity value of 28 ft./day, a hydraulic gradient of 0.020 ft./ft. and an estimated effective porosity of 25%.

The average linear groundwater velocity to the north at the Ash Ponds is 0.002 ft./day, or 0.83 ft./year. The calculated groundwater flow rate is based on an estimated hydraulic conductivity value of 0.028 ft./day, a hydraulic gradient of 0.008 ft./ft. and an estimated effective porosity of 25%.

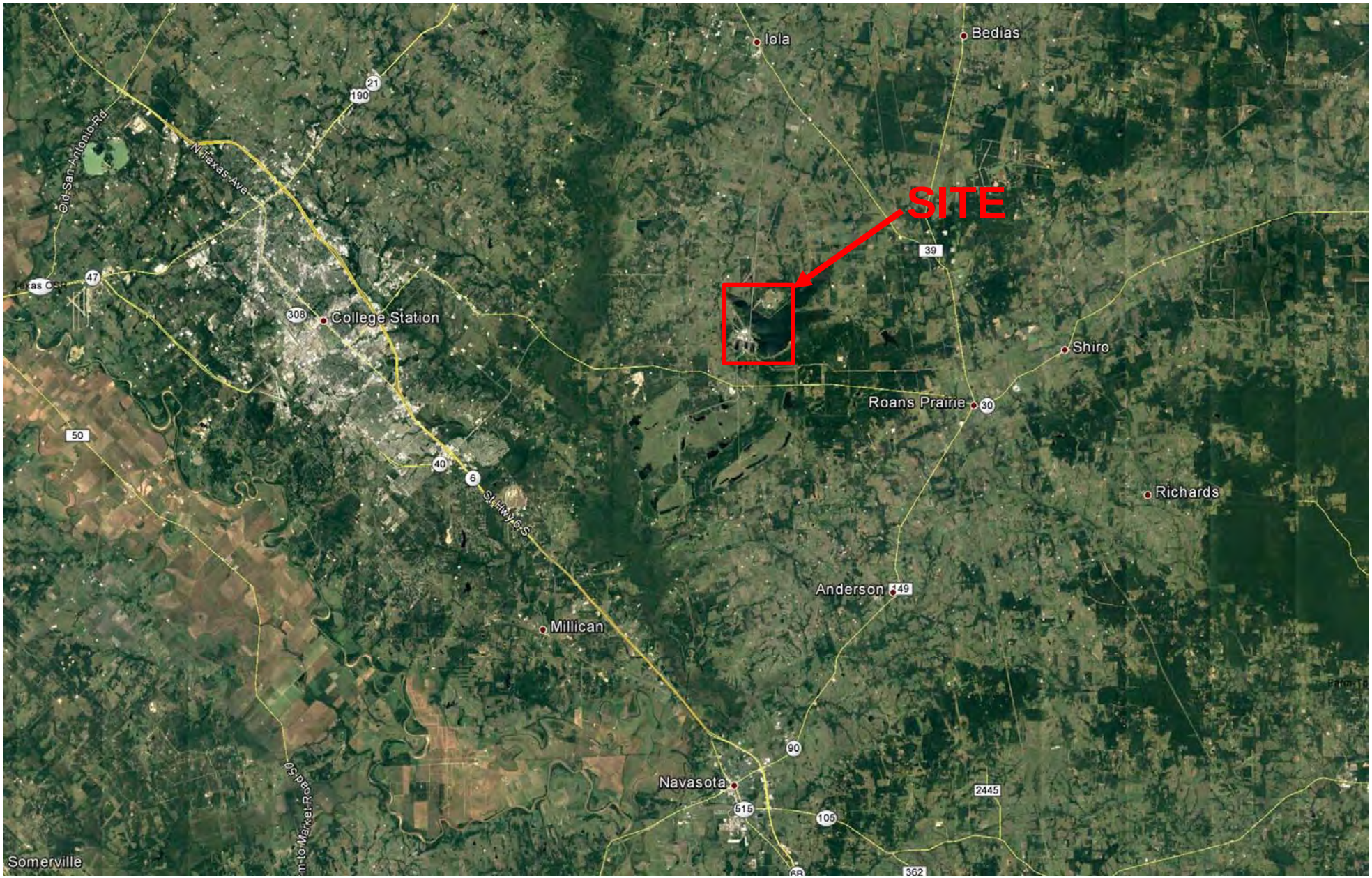
4.2 Groundwater Quality

Laboratory analytical results for all sampling events are included in Appendix C.

5. Groundwater Quality Data Analysis

Exploratory Data Analysis (EDA) was completed on the groundwater quality data set collected from the SFL, SSP, and AP monitoring networks in February 2017 and August 2017. The EDA is a preliminary diagnostic data evaluation step to assess the groundwater monitoring networks' ability to collect the correct quantity, quality, and type of data to adequately perform the statistical analyses set forth in 40 CFR 257.93. The EDA included the development of spatiotemporal maps, time series plots, histograms and basic statistics such as mean and standard deviation. Due to the limited number of sampled data points in the EDA, this preliminary analysis does not make a conclusion regarding groundwater impact.

FIGURES



Amec Foster Wheeler
Environment & Infrastructure
3755 S. Capital of Texas Highway, Ste. 375
Phone: (512) 795-0360 Fax: (512) 795-8423

N

0 5
Approximate Scale in Miles

SOURCE: GOOGLE EARTH

amec foster wheeler
TX Engineering Firm #F-0012

SITE LOCATION MAP

Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No. 6706170058
Date: 01/02/2018

Figure 1.1

P:\1 670615 Projects\6706150060 - TMPA - Gibbons Creek Mine\5500 CCR GW Monitoring\Annual GW Report\Figures\1 Site Location Map.pptx

Amec Foster Wheeler
Environment & Infrastructure
3755 S. Capital of Texas Highway, Ste. 375
Phone: (512) 795-0360 Fax: (512) 795-8423

N

0 1 mi

Approximate Scale in Miles

Source: Google Earth

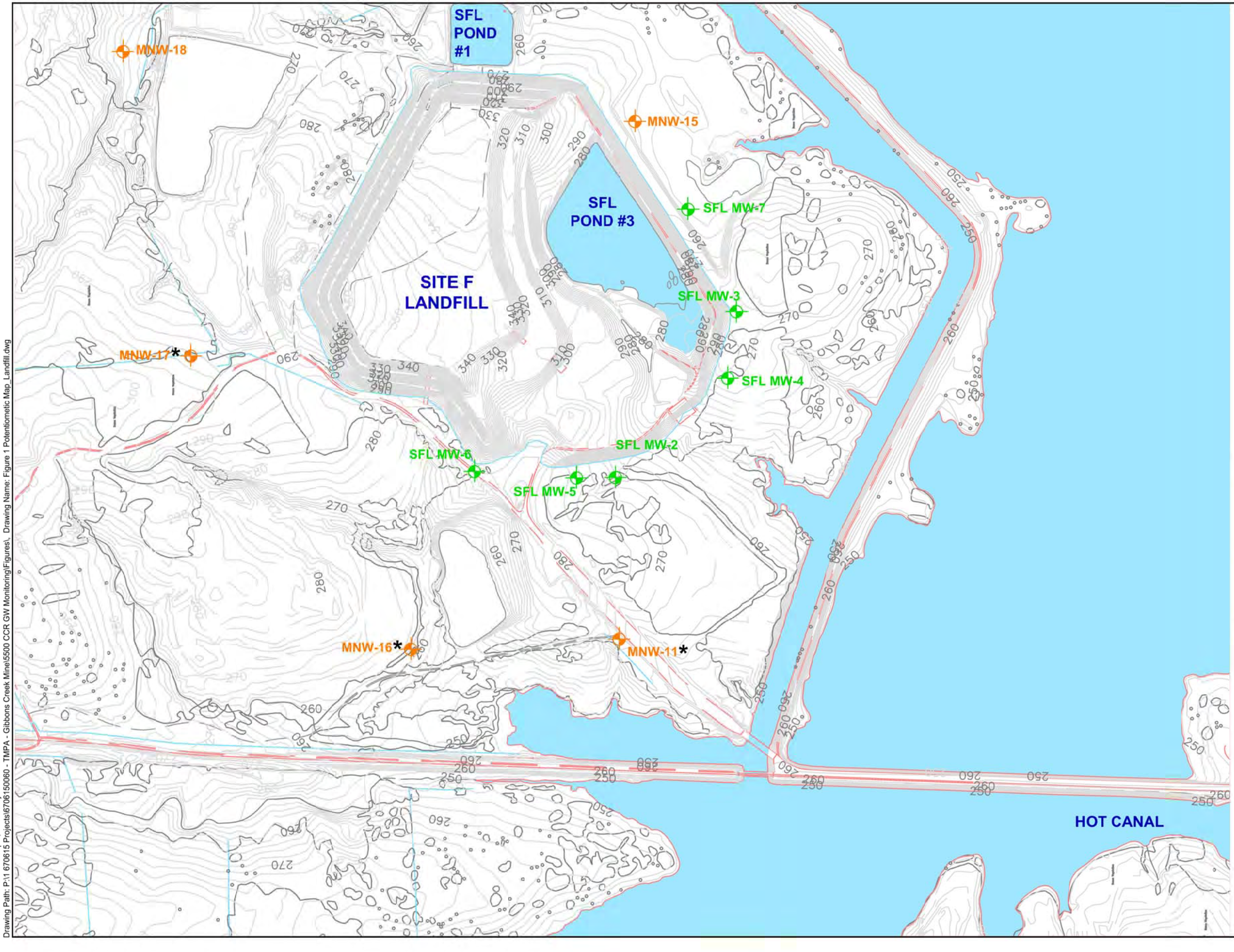
amec foster wheeler

TX Engineering Firm #F-0012

CCR UNITS
Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No. 6706150060
Date: 10/12//2017

Figure 1.2



LEGEND

- Amec Foster Wheeler Monitoring Well
- Black and Veatch Monitoring Wells
- * Welll Used for Groundwater Level Monitoring Only

0 250 500

APPROXIMATE SCALE IN FEET

SOURCE:
POTENTIOMETRIC SURFACE ELEVATION AND BASE MAP, ERM GOOGLE EARTH PRO

amec foster wheeler

SITE F LANDFILL
Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No. 6706150060	**Figure 2-1**
Date 10/2/2017	

Plot Date: 10/10/17 - 5:30pm, Plotted by: susan.l.brown
Drawing Path: P:\1 670615 Projects\6706150060 - TMPA - Gibbons Creek Mine\5500 CCR GW Monitoring\Figures\, Drawing Name: Figure 1 Potentiometric Map_Landfill.dwg

FACILITIES ADMIN/TECHNICAL OFFICES

PRODUCTION AREA

MAINT. AREA

SWMU 010: WATER STORAGE AND REMEDIATION TANK

DOMESTIC SWEAGE TREATMENT FACILITY

COAL PILE STORAGE AREA

RAIL CAR UNLOADING AREA

FLYASH LOADING AREA

GIBBONS CREEK RESERVOIR

ASH PONDS

SCRUBBER SLUDGE POND

AP PZ-1*

AP PZ-2*

AP PZ-3*

AP PZ-4*

AP MW-3

AP MW-1D

AP MW-5

AP MW-6 *

AP MW-4

SSP/AP MW-1

SSP MW-2

SSP MW-3

SSP MW-4

LEGEND

- Monitoring Well
- Piezometer
- * Well Used for Groundwater Level Monitoring Only

0 200 400

Approximate Scale in Feet

Basemap modified from Potentiometric Surface Elevation and Base Map, ERM, Google Earth Pro

amec foster wheeler

SCRUBBER SLUDGE POND AND ASH PONDS

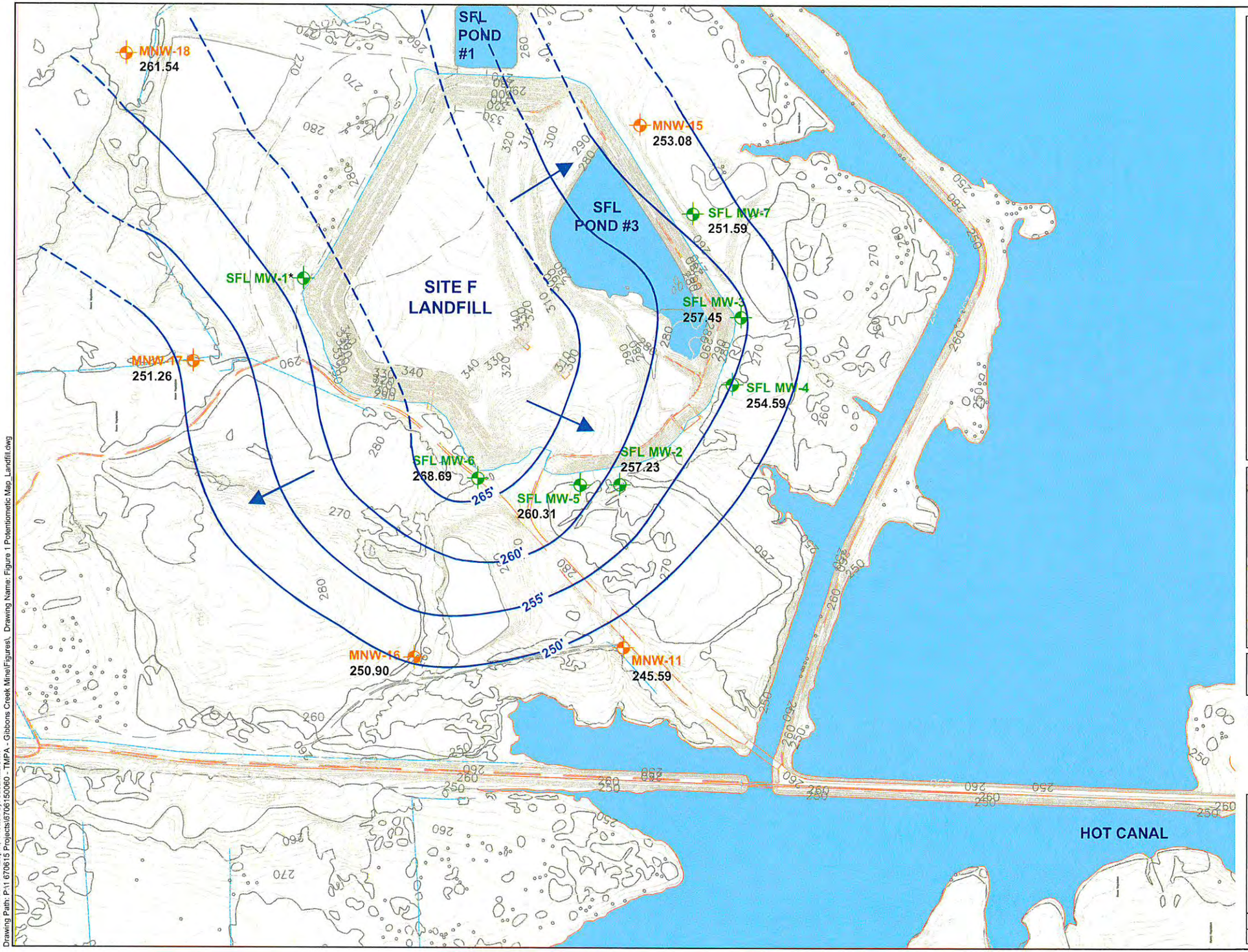
Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No.: 6706150060

Date: 10/10/2017

Figure 2.2

Plot Date: 10/10/17 - 5:14pm, Plotted by: susan.l.brown
Drawing Path: P:\1 6706150060 - TMPA - Gibbons Creek Mine\5500 CCR GW Monitoring\Figures\, Drawing Name: Figure 2 Potentiometic Map_Ponds_.DWG



LEGEND

- Amec Foster Wheeler Monitoring Well
- Black & Veatch Well
- 257.66 Measured Water Level (Ft. AMSL)
- Potentiometric Surface Contour in Ft. AMSL (Line Dashed Where Inferred)
- Indicates Groundwater Flow Direction
- * Water Level Not Used

STATE OF TEXAS
GREGORY D. CEIFERT
GEOLOGY
10077
LICENSED
PROFESSIONAL GEOSCIENTIST
1/24/17

0 250 500
APPROXIMATE SCALE IN FEET

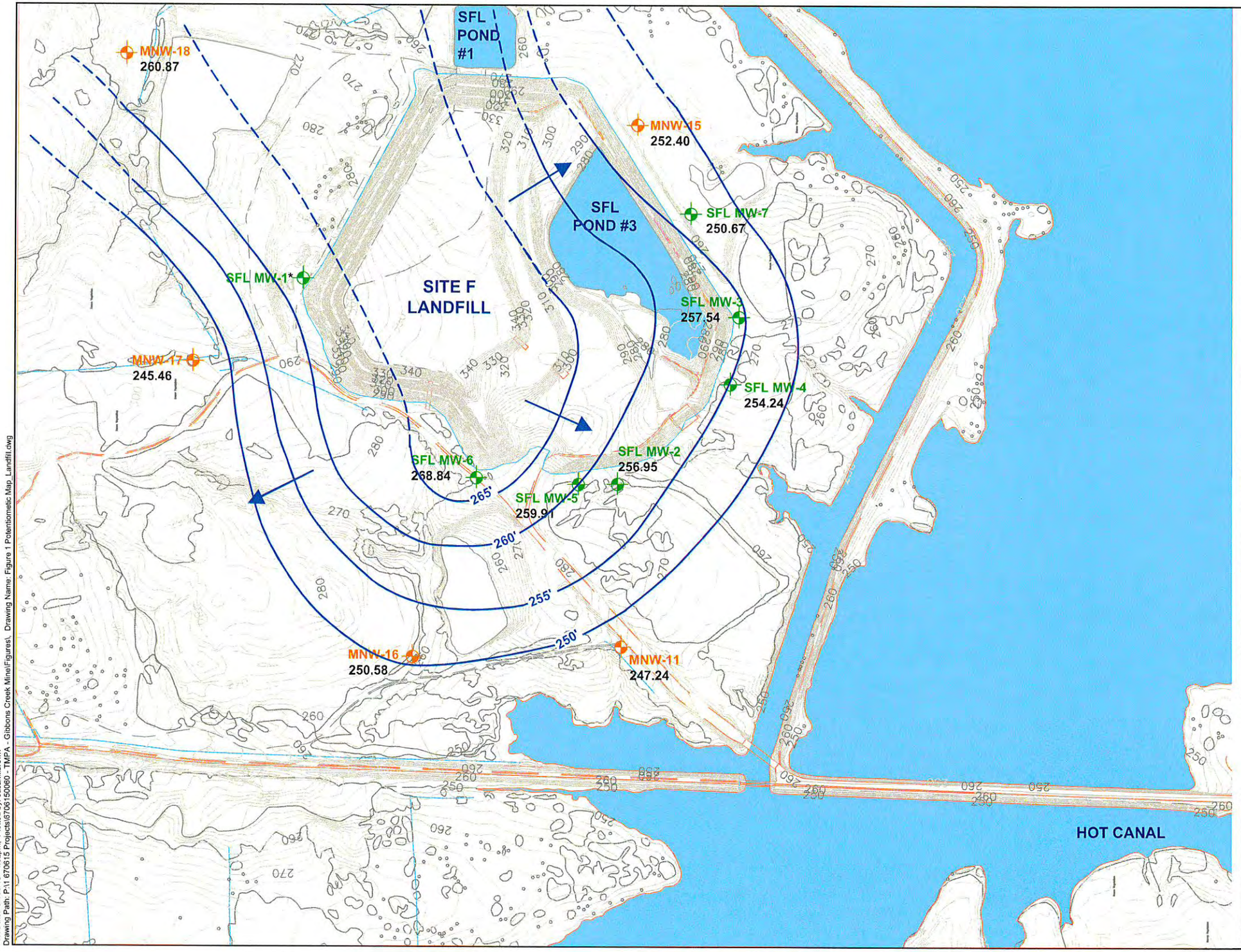
SOURCE:
POTENTIOMETRIC SURFACE ELEVATION AND BASE MAP, ERM GOOGLE EARTH PRO

amec foster wheeler

SITE F LANDFILL
Groundwater Potentiometric Surface Map - June 12, 2017
Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No. 6706150060	Figure 4.1
Date 08/23/2017	

Plot Date: 01/08/18 - 1:28pm, Plotted by: susan.l.brown
Drawing Path: P:\1 6706\15 Projects\6706150060 - TMPA - Gibbons Creek Mine\Figures\, Drawing Name: Figure 1 Potentiometric Map_Landfill.dwg



LEGEND

- Amec Foster Wheeler Monitoring Well
- Black & Veatch Well
- 257.66 Measured Water Level (Ft. AMSL)
- Potentiometric Surface Contour in Ft. AMSL (Line Dashed Where Inferred)
- Indicates Groundwater Flow Direction
- * Water Level Not Used

STATE OF TEXAS
ANTHONY R. SWERT
GEOLOGY
10077
LICENSED
PROFESSIONAL GEOSCIENTIST

0 250 500
APPROXIMATE SCALE IN FEET

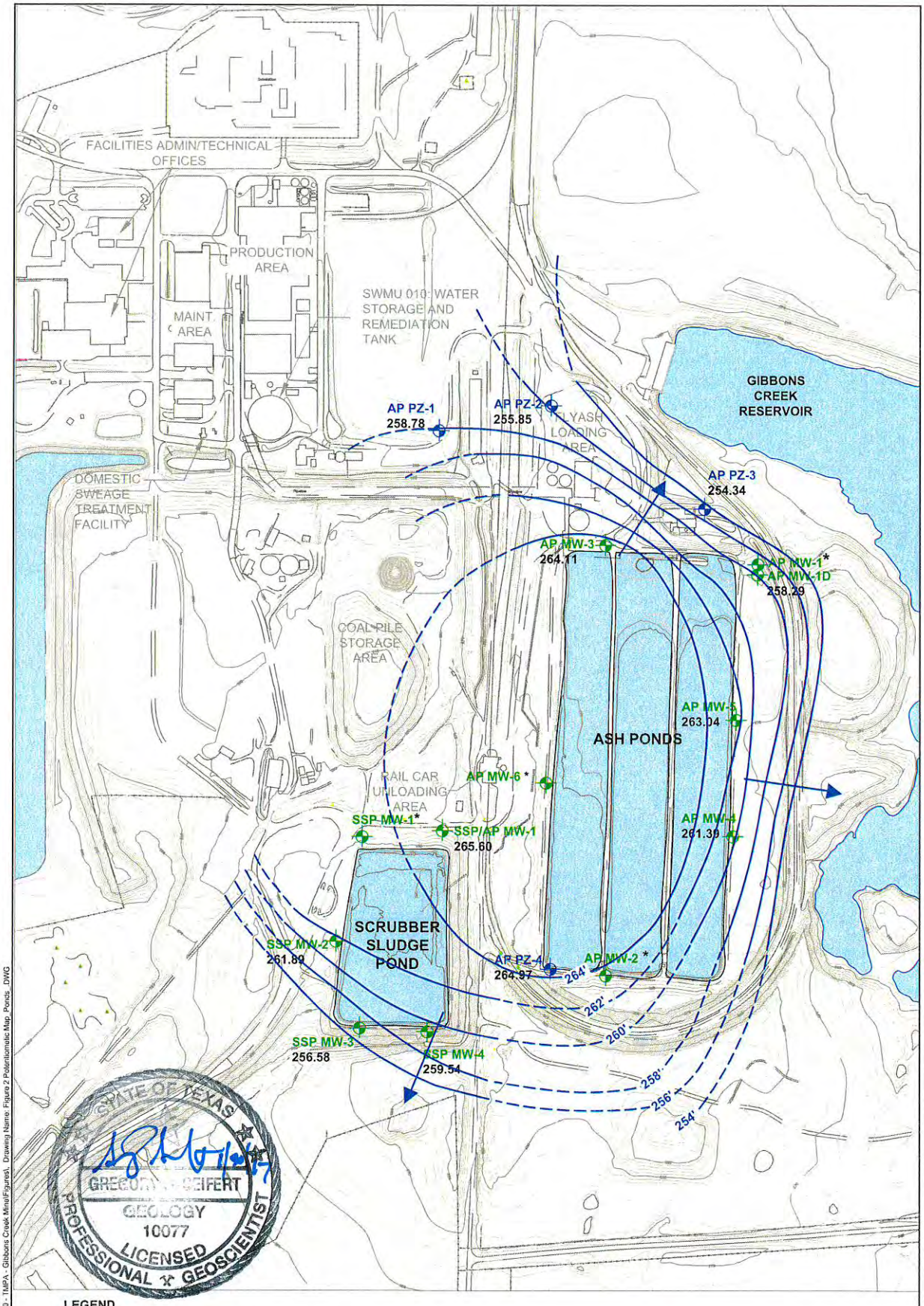
SOURCE:
POTENTIOMETRIC SURFACE ELEVATION AND BASE MAP, ERM GOOGLE EARTH PRO

amec foster wheeler

SITE F LANDFILL
Groundwater Potentiometric Surface Map - August 22, 2017
Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No. 6706150060	Figure 4.2
Date 09/14/2017	

Plot Date: 01/08/18 - 1:32pm, Plotted by: susan.l.brown
Drawing Path: P:\1 6706\15 Projects\6706150060 - TMPA - Gibbons Creek Mine\Figures\, Drawing Name: Figure 1 Potentiometric Map_Landfill.dwg



LEGEND

- Monitoring Well
- Piezometer
- 256.56 Measured Water Level (Ft. AMSL)
- Potentiometric Surface Contour in Ft. AMSL (Line Dashed Where Inferred)
- Indicates Groundwater Flow Direction
- * Water level not used.

N

0 200 400
Approximate Scale in Feet

Basemap modified from Potentiometric Surface Elevation and Base Map, ERM, Google Earth Pro

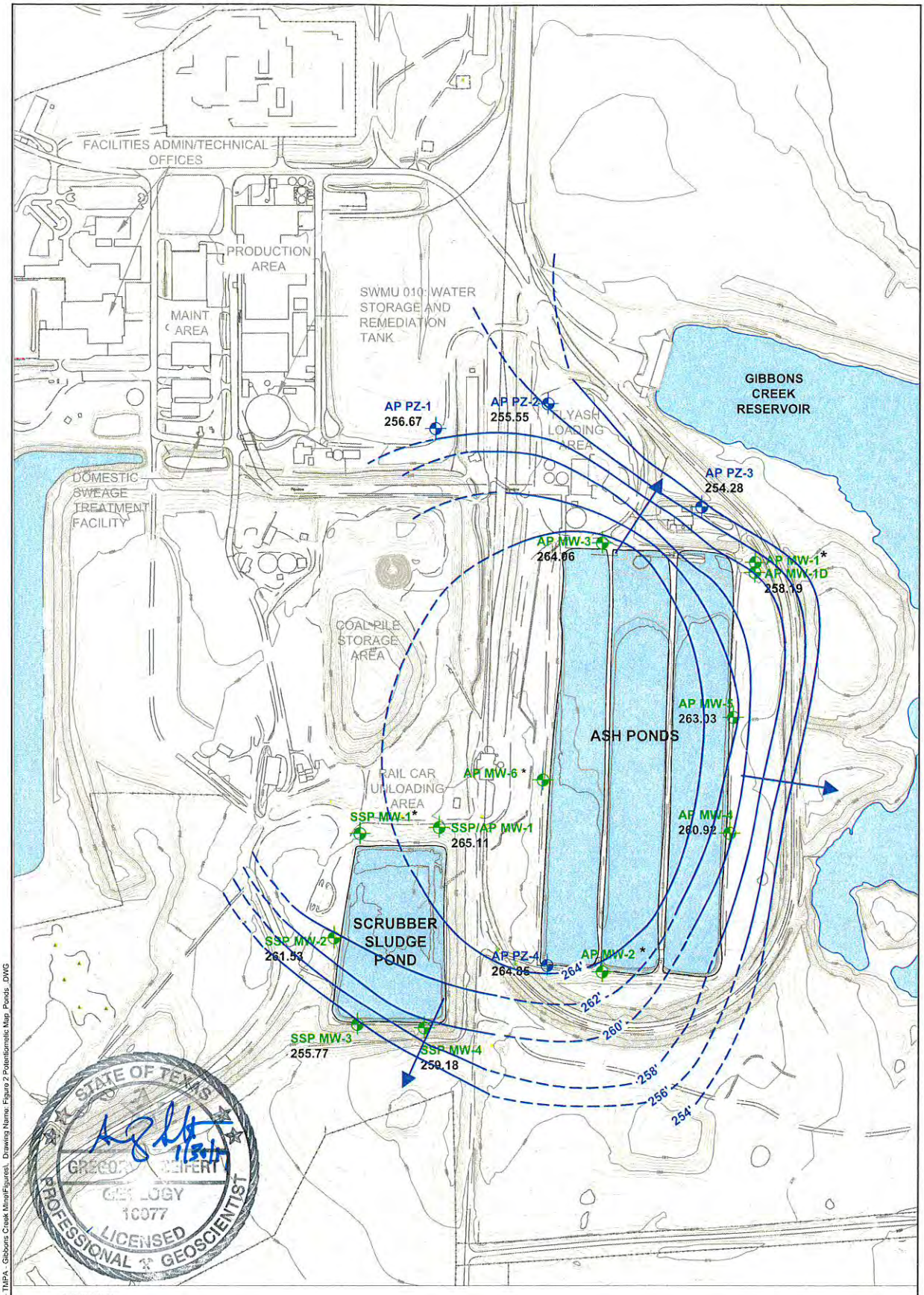
amec foster wheeler

SCRUBBER SLUDGE POND AND ASH PONDS
Groundwater Potentiometric Surface Map - June 12, 2017
Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No.: 6706150060
Date: 08/17/2017

Figure 4.3

Plot Date: 01/30/18 - 2:36pm, Plotted by: susan.l.brown
Drawing Path: P:\1 670615 Projects\6706150060 - TMPA - Gibbons Creek Mine\Figures\, Drawing Name: Figure 2 Potentiometric Map_Ponds_.DWG



amec foster wheeler

SCRUBBER SLUDGE POND AND ASH PONDS
Groundwater Potentiometric Surface Map - August 22, 2017
Texas Municipal Power Agency
Gibbons Creek Steam Electric Station
Grimes County, Texas

Project No.: 6706150060
Date: 09/14/2017

Figure 4.4

Plot Date: 01/08/18 - 1:24pm, Plotted by: susan.l.brown
Drawing Path: P:\1 670515 Projects\6706150060 - TMPA - Gibbons Creek Mnat\Figures\, Drawing Name: Figure 2 Potentiometric Map_Ponds .DWG

TABLES

Table 2-1
Well Construction Details
TMPA Gibbons Creek Steam Electric Station

Well ID	Northing[1]	Easting[1]	Date Completed	Well Construction	Well Diameter (in.)	Borehole Diameter (in.)	Land Surface Elevation (ft. amsl)	Measuring Point Elevation (ft. amsl)	Total Well Depth (ft. below TOC)	Total Well Depth (ft. bgs)	Total Borehole Depth (ft. bgs)	Total Depth (elevation)	Screen Interval (ft. bgs)		Screen Interval (elevation)	
													Top	Bottom	Top	Bottom
AP MW-1D	10213589.808	3635630.942	May 24, 2016	Schedule 40 PVC	2	8 5/8	269.02	272.04	43.0	40.0	40.0	229.0	34.5	39.5	234.5	229.5
AP MW-3	10213665.476	3635026.590	May 25, 2016	Schedule 40 PVC	2	8 5/8	271.46	274.68	43.4	40.2	40.0	231.3	34.5	39.5	237.0	232.0
AP MW-4	10212415.597	3635562.990	June 1, 2016	Schedule 40 PVC	2	8 5/8	270.93	274.16	52.8	49.6	50.0	221.4	44.5	49.5	226.4	221.4
AP MW-5	10212901.968	3635577.940	June 1, 2016	Schedule 40 PVC	2	8 5/8	271.16	274.13	43.1	40.1	40.0	231.0	30.5	35.5	240.7	235.7
AP PZ-1[2]	10214173.721	3634278.958	May 24, 2016	Schedule 40 PVC	2	8 5/8	262.70	265.67	29.4	26.4	35.0	236.3	21.0	26.0	241.7	236.7
AP PZ-2[2]	10214308.029	3634847.514	May 24, 2016	Schedule 40 PVC	2	8 5/8	271.71	274.91	43.2	40.0	40.0	231.7	34.5	39.5	237.2	232.2
AP PZ-3[2]	10213822.938	3635414.358	May 25, 2016	Schedule 40 PVC	2	8 5/8	255.76	259.11	43.1	39.7	40.0	216.0	34.5	39.5	221.3	216.3
AP PZ-4[2]	10211826.931	3634752.131	June 2, 2016	Schedule 40 PVC	2	8 5/8	271.39	273.65	45.3	43.0	45.0	228.4	38.5	43.5	232.9	227.9
SSP MW-2	10212007.735	3633835.274	June 2, 2016	Schedule 40 PVC	2	8 5/8	280.62	283.66	46.9	43.9	45.0	236.8	38.5	43.5	242.1	237.1
SSP MW-3	10211581.588	3633889.744	June 3, 2016	Schedule 40 PVC	2	8 5/8	280.95	283.97	48.2	45.2	45.0	235.8	39.5	44.5	241.5	236.5
SSP MW-4	10211577.225	3634198.516	June 3, 2016	Schedule 40 PVC	2	8 5/8	280.86	283.86	51.5	48.5	50.0	232.3	43.0	48.0	237.9	232.9
SSP/AP MW-1	10212432.016	3634290.363	May 26, 2016	Schedule 40 PVC	2	8 5/8	269.33	272.53	43.2	40.0	40.0	229.3	29.5	39.5	239.8	229.8
SFL MW-1	10222937.337	3638046.475	March 15, 2016	Schedule 40 PVC	2	8	298.90	301.80	22.8	19.9	22.0	279.0	15.0	20.0	283.9	278.9
SFL MW-2	10220908.018	3636738.712	March 16, 2016	Schedule 40 PVC	2	8	265.69	268.31	23.6	21.0	50.0	244.7	16.0	21.0	249.7	244.7
SFL MW-3	10220174.555	3637846.961	May 25, 2016	Schedule 40 PVC	2	8 5/8	271.65	275.00	28.2	24.9	25.0	246.8	19.5	24.5	252.2	247.2
SFL MW-4	10220291.840	3637261.610	May 31, 2016	Schedule 40 PVC	2	8 5/8	266.46	269.53	42.7	39.6	40.0	226.8	34.5	39.5	232.0	227.0
SFL MW-5	10221191.234	3636721.834	May 23, 2016	Schedule 40 PVC	2	8 5/8	273.33	276.25	24.3	21.4	25.0	251.9	16.0	21.0	257.3	252.3
SFL MW-6	10221819.634	3636700.033	May 23, 2016	Schedule 40 PVC	2	8 5/8	283.49	286.66	23.1	19.9	20.0	263.6	14.5	19.5	269.0	264.0
SFL MW-7	10220517.925	3638408.836	May 3, 2017	Schedule 40 PVC	2	8 5/8	264.83	264.63	58.1	58.3	55.0	206.5	50.0	55.0	214.8	209.8
MNW-11[2]	10220909.018	3635624.897	February 26, 1988	Schedule 40 PVC	2	4 1/2	268.12	267.95	47.3	47.5	48.0	220.7	42.5	47.5	225.7	220.7
MNW-15	10220778.128	3638974.095	February 23, 1988	Schedule 40 PVC	2	4 1/2	257.536	257.331	27.0	27.2	27.7	230.3	22.2	27.2	235.3	230.3
MNW-16[2]	10222188.729	3635593.380	February 25, 1988	Schedule 40 PVC	4	7	263.333	263.191	40.4	40.5	41.0	222.8	35.5	40.5	227.8	222.8
MNW-17[2]	10223663.517	3637468.447	February 17, 1988	Schedule 40 PVC	4	7	293.864	293.724	50.2	50.4	50.9	243.5	45.4	50.4	248.5	243.5
MNW-18	10224118.439	3639397.902	February 18, 1988	Schedule 40 PVC	4	7	270.912	270.755	51.0	51.2	51.7	219.7	46.2	51.2	224.7	219.7

[1]Datum - NAD 83 (Conus)
[2]Water level monitoring only, not used in groundwater quality monitoring

Table 3.1 Site F Landfill Groundwater Sampling Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Location	Monitoring Program	Number of Samples*	Sample Collection Dates							
MNW-18	Upgradient	Baseline	8	5/3/2017	5/30/2017	6/13/2017	6/27/2017	7/19/2017	8/23/2017	8/31/2017	9/7/2017
SFL MW-2	Downgradient	Baseline	8	6/23/2016	8/25/2016	10/19/2016	12/22/2016	2/22/2017	5/3/2017	6/14/2017	8/23/2017
SFL MW-3	Downgradient	Baseline	8	6/23/2016	8/25/2016	10/19/2016	12/22/2016	2/23/2017	5/2/2017	6/14/2017	8/22/2017
SFL MW-4	Downgradient	Baseline	8	6/23/2016	8/25/2016	10/19/2016	12/22/2016	2/22/2017	5/2/2017	6/14/2017	8/22/2017
SFL MW-5	Downgradient	Baseline	8	6/23/2016	8/25/2016	10/19/2016	12/21/2016	2/23/2017	5/3/2017	6/14/2017	8/23/2017
SFL MW-6	Downgradient	Baseline	8	6/23/2016	8/25/2016	10/19/2016	12/21/2016	2/22/2017	5/3/2017	6/13/2017	8/23/2017
SFL MW-7	Downgradient	Baseline	8	5/11/2017	5/31/2017	6/14/2017	6/28/2017	7/20/2017	8/23/2017	8/31/2017	9/7/2017
MNW-15	Downgradient	Baseline	8	5/2/2017	5/31/2017	6/14/2017	6/28/2017	7/20/2017	8/22/2017	8/31/2017	9/7/2017

* does not include duplicate samples for QA

Table 3.2 Scrubber Sludge Ponds Groundwater Sampling Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Location	Monitoring Program	Number of Samples*	Sample Collection Dates							
SSP APMW-1	Upgradient	Baseline	8	6/21/2016	8/23/2016	10/17/2016	12/20/2016	2/21/2017	5/3/2017	6/12/2017	8/23/2017
SSP MW-2	Downgradient	Baseline	8	6/21/2016	8/23/2016	10/18/2016	12/20/2016	2/21/2017	5/3/2017	6/14/2017	8/24/2017
SSP MW-3	Downgradient	Baseline	8	6/21/2016	8/23/2016	10/18/2016	12/20/2016	2/21/2017	5/4/2017	6/13/2017	8/24/2017
SSP MW-4	Downgradient	Baseline	8	6/21/2016	8/23/2016	10/18/2016	12/20/2016	2/21/2017	5/4/2017	6/14/2017	8/24/2017

* does not include duplicate samples for QA

Table 3.3 Ash Ponds Groundwater Sampling Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Location	Monitoring Program	Number of Samples*	Sample Collection Dates							
SSP/AP MW1	Upgradient	Baseline	8	6/21/2016	8/23/2016	10/17/2016	12/20/2016	2/21/2017	5/3/2017	6/12/2017	8/23/2017
AP MW-1D	Downgradient	Baseline	8	6/22/2016	8/24/2016	10/18/2016	12/20/2016	2/21/2017	5/4/2017	6/13/2017	8/24/2017
AP MW-3	Downgradient	Baseline	8	6/22/2016	8/24/2016	11/10/2016	12/21/2016	2/20/2017	5/3/2017	6/12/2017	8/22/2017
AP MW-4	Downgradient	Baseline	8	6/22/2016	8/24/2016	10/18/2016	12/20/2016	2/21/2017	5/4/2017	6/12/2017	8/24/2017
AP MW-5	Downgradient	Baseline	8	6/22/2016	8/24/2016	10/18/2016	12/20/2016	2/21/2017	5/4/2017	6/12/2017	8/24/2017

* does not include duplicate samples for QA

Table 4.1 Site F Landfill Groundwater Elevation Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Date	Depth to Water (ft. below MP)	Measuring Point Elevation[1] (ft. amsl)	Water Level Elevation (ft. amsl)
MNW-11	5/2/2017	19.64	268.115	248.48
	5/31/2017	21.41	268.115	246.71
	6/12/2017	22.53	268.115	245.59
	6/28/2017	22.87	268.115	245.25
	7/19/2017	23.02	268.115	245.10
	8/22/2017	20.88	268.115	247.24
	8/31/2017	22.74	268.115	245.38
	9/7/2017	25.40	268.115	242.72
MNW-15	5/2/2017	4.63	257.536	252.91
	5/31/2017	4.85	257.536	252.69
	6/12/2017	4.46	257.536	253.08
	6/28/2017	4.59	257.536	252.95
	7/20/2017	4.98	257.536	252.56
	8/22/2017	5.14	257.536	252.40
	8/31/2017	4.65	257.536	252.89
	9/7/2017	5.00	257.536	252.54
MNW-16	5/2/2017	13.53	263.333	249.80
	5/30/2017	12.62	263.333	250.71
	6/12/2017	12.43	263.333	250.90
	6/27/2017	12.49	263.333	250.84
	7/19/2017	12.61	263.333	250.72
	8/22/2017	12.75	263.333	250.58
	8/31/2017	12.27	263.333	251.06
	9/7/2017	12.37	263.333	250.96
MNW-17	5/2/2017	35.26	293.864	258.60
	5/30/2017	38.61	293.864	255.25
	6/12/2017	42.6	293.864	251.26
	6/27/2017	44.74	293.864	249.12
	7/19/2017	48.23	293.864	245.63
	8/22/2017	48.40	293.864	245.46
MNW-18	5/2/2017	8.84	270.912	262.07
	5/30/2017	9.40	270.912	261.51
	6/12/2017	9.37	270.912	261.54
	6/27/2017	9.43	270.912	261.48
	7/19/2017	9.71	270.912	261.20
	8/22/2017	10.04	270.912	260.87
	8/31/2017	9.83	270.912	261.08
	9/7/2017	9.87	270.912	261.04

Table 4.1 Site F Landfill Groundwater Elevation Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Date	Depth to Water (ft. below MP)	Measuring Point Elevation[1] (ft. amsl)	Water Level Elevation (ft. amsl)
SFL MW-2	6/23/2016	14.85	269.53	254.7
	8/25/2016	15.05	269.53	254.5
	10/19/2016	14.81	269.53	254.72
	12/22/2016	15.41	269.53	254.12
	2/22/2017	14.79	269.53	254.74
	5/3/2017	11.17	268.31	257.14
	6/12/2017	11.08	268.31	257.23
	8/22/2017	11.36	268.31	256.95
SFL MW-3	6/23/2016	11.22	268.31	257.1
	8/25/2016	11.37	268.31	256.9
	10/19/2016	11.24	268.31	257.07
	12/22/2016	11.68	268.31	256.63
	2/23/2017	11.32	268.31	256.99
	5/2/2017	17.55	275.00	257.45
	6/12/2017	17.55	275.00	257.45
	8/22/2017	17.46	275.00	257.54
SFL MW-4	6/23/2016	17.63	275.00	257.4
	8/25/2016	17.34	275.00	257.7
	10/19/2016	17.07	275.00	257.93
	12/22/2016	17.69	275.00	257.31
	2/22/2017	17.42	275.00	257.58
	5/2/2017	14.87	269.53	254.66
	6/12/2017	14.94	269.53	254.59
	8/22/2017	15.29	269.53	254.24
SFL MW-5	6/23/2016	15.91	276.25	260.3
	8/25/2016	16.11	276.25	260.1
	10/19/2016	16.07	276.25	260.18
	12/21/2016	16.30	276.25	259.95
	2/23/2017	16.03	276.25	260.22
	5/3/2017	15.85	276.25	260.40
	6/12/2017	15.94	276.25	260.31
	8/22/2017	16.34	276.25	259.91
SFL MW-6	6/23/2016	17.50	286.66	269.2
	8/25/2016	17.14	286.66	269.5
	10/19/2016	17.01	286.66	269.65
	12/21/2016	17.50	286.66	269.16
	2/22/2017	17.67	286.66	268.99
	5/3/2017	17.95	286.66	268.71
	6/12/2017	17.97	286.66	268.69
	8/22/2017	17.82	286.66	268.84

Table 4.1 Site F Landfill Groundwater Elevation Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Date	Depth to Water (ft. below MP)	Measuring Point Elevation[1] (ft. amsl)	Water Level Elevation (ft. amsl)
SFL MW-7	5/11/2017	13.56	264.831	251.27
	5/31/2017	13.56	264.831	251.27
	6/12/2017	13.24	264.831	251.59
	6/28/2017	13.42	264.831	251.41
	7/20/2017	13.21	264.831	251.62
	8/22/2017	14.16	264.831	250.67
	8/31/2017	13.01	264.831	251.82
	9/7/2017	13.15	264.831	251.68

Table 4.2 Scrubber Sludge Pond and Ash Ponds Groundwater Elevation Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Date	Depth to Water (ft. below MP)	Measuring Point Elevation[1] (ft. amsl)	Water Level Elevation (ft. amsl)
SSP/AP MW-1	6/21/2016	6.72	272.53	265.8
	8/23/2016	6.80	272.53	265.7
	10/17/2016	6.40	272.53	266.13
	12/20/2016	7.04	272.53	265.49
	2/21/2017	6.42	272.53	266.11
	5/3/2017	6.64	272.53	265.89
	6/12/2017	6.93	272.53	265.60
	8/22/2017	7.42	272.53	265.11
SSP MW-2	6/21/2016	12.38	283.66	271.3
	8/23/2016	21.33	283.66	262.3
	10/17/2016	21.31	283.66	262.35
	12/20/2016	22.04	283.66	261.62
	2/21/2017	21.37	283.66	262.29
	5/3/2017	21.52	283.66	262.14
	6/12/2017	21.77	283.66	261.89
	8/22/2017	22.13	283.66	261.53
SSP MW-3	6/21/2016	26.54	283.97	257.4
	8/23/2016	27.41	283.97	256.6
	10/17/2016	27.21	283.97	256.76
	12/20/2016	27.63	283.97	256.34
	2/22/2017	26.90	283.97	257.07
	5/4/2017	27.09	283.97	256.88
	6/12/2017	27.39	283.97	256.58
	8/22/2017	28.20	283.97	255.77
SSP MW-4	6/21/2016	24.11	283.86	259.7
	8/23/2016	24.19	283.86	259.7
	10/17/2016	24.25	283.86	259.61
	12/20/2016	24.36	283.86	259.50
	2/21/2017	23.74	283.86	260.12
	5/4/2017	23.98	283.86	259.88
	6/12/2017	24.32	283.86	259.54
	8/22/2017	24.68	283.86	259.18
AP MW-1D	6/22/2016	13.91	272.04	258.1
	8/24/2016	13.79	272.04	258.2
	10/17/2016	13.48	272.04	258.56
	12/21/2016	14.06	272.04	257.98
	2/21/2017	13.69	272.04	258.35
	5/4/2017	13.84	272.04	258.20
	6/12/2017	13.75	272.04	258.29
	8/22/2017	13.85	272.04	258.19

Table 4.2 Scrubber Sludge Pond and Ash Ponds Groundwater Elevation Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Date	Depth to Water (ft. below MP)	Measuring Point Elevation[1] (ft. amsl)	Water Level Elevation (ft. amsl)
AP MW-3	6/22/2016	10.46	274.68	264.2
	8/24/2016	10.43	274.68	264.3
	10/17/2016	10.22	274.68	264.46
	12/21/2016	10.65	274.68	264.03
	2/20/2017	10.48	274.68	264.20
	5/3/2017	10.65	274.68	264.03
	6/12/2017	10.57	274.68	264.11
	8/22/2017	10.62	274.68	264.06
AP MW-4	6/22/2016	12.86	274.16	261.3
	8/24/2016	13.06	274.16	261.1
	10/17/2016	13.06	274.16	261.10
	12/21/2016	13.15	274.16	261.01
	2/21/2017	12.72	274.16	261.44
	5/4/2017	13.15	274.16	261.01
	6/12/2017	12.77	274.16	261.39
	8/22/2017	13.24	274.16	260.92
AP MW-5	6/22/2016	10.99	274.13	263.1
	8/24/2016	10.96	274.13	263.2
	10/17/2016	10.82	274.13	263.31
	12/21/2016	11.15	274.13	262.98
	2/21/2017	10.98	274.13	263.15
	5/4/2017	11.17	274.13	262.96
	6/12/2017	11.09	274.13	263.04
	8/22/2017	11.10	274.13	263.03
AP PZ-1	8/23/2016	6.75	265.67	258.92
	10/17/2016	8.31	265.67	257.36
	12/20/2016	6.75	265.67	258.92
	2/21/2017	6.75	265.67	258.92
	5/2/2017	8.10	265.67	257.57
	6/12/2017	9.00	265.67	256.67
	8/22/2017	9.00	265.67	256.67

Table 4.2 Scrubber Sludge Pond and Ash Ponds Groundwater Elevation Summary
2017 Annual Report
TMPA Gibbons Creek Steam Electric Station
Anderson, Texas

Well	Date	Depth to Water (ft. below MP)	Measuring Point Elevation[1] (ft. amsl)	Water Level Elevation (ft. amsl)
AP PZ-2	8/23/2016	18.94	274.91	255.97
	10/17/2016	18.84	274.91	256.07
	12/20/2016	18.94	274.91	255.97
	2/21/2017	18.94	274.91	255.97
	5/2/2017	18.98	274.91	255.93
	6/12/2017	19.36	274.91	255.55
	8/22/2017	19.36	274.91	255.55
AP PZ-3	8/23/2016	4.61	259.11	254.50
	10/17/2016	4.52	259.11	254.59
	12/20/2016	4.61	259.11	254.50
	2/21/2017	4.61	259.11	254.50
	5/2/2017	4.81	259.11	254.30
	6/12/2017	4.83	259.11	254.28
	8/22/2017	4.83	259.11	254.28
AP PZ-4	8/23/2016	8.40	273.65	265.25
	10/17/2016	8.72	273.65	264.93
	12/20/2016	8.40	273.65	265.25
	2/21/2017	8.40	273.65	265.25
	5/2/2017	8.74	273.65	264.91
	6/12/2017	8.80	273.65	264.85
	8/22/2017	8.80	273.65	264.85
	9/7/2017	8.38	273.65	265.27

APPENDIX A

Borehole and Well Completion Logs

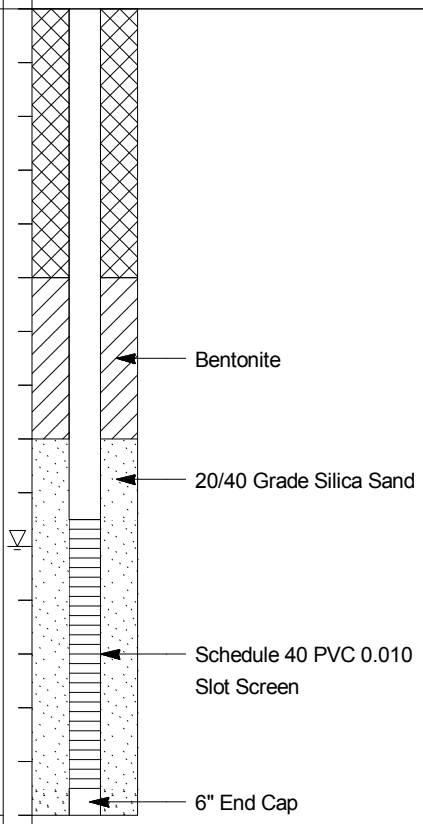
PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. AP MW-1D**
BORING LOCATION: Northeast Corner of Ash Ponds	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/24/16 / DATE FINISHED: 5/24/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 40.0 / SCREEN INTERVAL (ft.): 34.5'-39.5
DRILLING EQUIPMENT: 8 5/8" OD HSA Truck Mounded Rig	DEPTH TO WATER ATD: 35 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Sandy clay fill to 4.5'	2" Diameter PVC
5					Slightly SANDY CLAY (CH): light yellowish-brown, dry, hard, trace calcium carbonate nodules, fine-grained sand to 5' SANDY CLAY (CH): light yellowish-brown, slightly moist, hard, fine-grained sand, trace pebbles	
					Lignite, dark brown, slighly moist, firm 7'-8.5'	
10					SANDY CLAY (CL): light olive brown, moist, very stiff, fine-grained sand, trace of small gravel size nodules, minor ferrous staining SANDY CLAY (CL): light olive brown, brown lenses, dry, fine-grained sand, stiff	
					SILTY SAND (SM): dark gray, very moist	
15					CLAYEY SAND (SC): light olive brown, moist, very stiff, fine-grained sand CLAYEY SAND (SC): light olive brown, moist, firm, fine-grained sand SILTY SAND (SM): light olive brown, wet, loose, fine-grained at 16'	Grout
20					SILTY SAND (SM): light olive brown, wet, loose, fine-grained sand	
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP MW-1D (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
30					1" hard shaley sand lenses at 25.5' SILTY SAND (SM): light olive brown, wet, loose, fine-grained, one ferrsous stained sand lense at 16' SILTY SAND (SM): light olive brown, wet, loose, fine-grained sand 2" sandstone lense, hard at 31.5'	
35					4" sandstone lense, hard at 33' 3" sandstone lense, ferrous staining, hard, blocky at 34.25' SILTY SAND (SM): light olive brown, wet, loose, fine-grained sand SILTY SAND (SM): light olive brown with very thin lignite lenses 2" hard sandstone layer at 40'	
40					Total Depth = 40'	
45						
50						
55						

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas		**Log of Well No. AP-MW-3**	
BORING LOCATION: Northeast Corner of Ash Ponds		GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: Best Drilling		DATE STARTED: 5/25/16	DATE FINISHED: 5/25/16
DRILLING METHOD: HSA		TOTAL DEPTH (ft.): 40.0	SCREEN INTERVAL (ft.): 34.5'-39.5
DRILLING EQUIPMENT: 8 5/8" OD HSA Truck Mounded Rig		DEPTH TO WATER ATD: 20	CASING:
SAMPLING METHOD: 5' x 4" Core Barrel		LOGGED BY: Daniel B. Haug, P.G.	
HAMMER WEIGHT: NA	DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G.	REG. NO. 1773

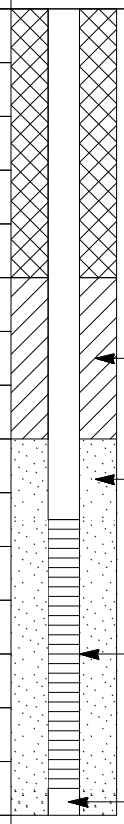
DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					SANDY CLAY with gravel (CH): brown, moist, firm, fine-grained sand, few small gravel, (fill)	2" Diameter PVC
5					SANDY CLAY with gravel (CL): brown and reddish-brown, moist, very stiff, fine-grained sand, few small gravel, few clay clasts, 3-4' layers (fill)	
10					SANDY CLAY with gravel (CL): brown mottled, moist, very stiff, fine-grained sand, trace of small gravel (fill)	
					SILTY SAND (SM): light olive brown, moist, firm, fine-grained sand	
15					SILTY SAND (SM): light olive brown, moist, fine-grained sand	Grout
20					SILTY SAND (SM): light olive brown, wet, fine-grained sand	▽
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP-MW-3 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY SAND (SM): light olive brown, wet, fine-grained sand	
					- siltsone interbedded with loose sand 27.5'-28.75'	
					Siltstone, light olive gray, dry, hard at 28.75' and 29.5'	
30					SILTY SAND (SM): light olive brown, moist, fine-grained sand SITLY SAND (SM): light olive brown, wet, fine-grained sand	Bentonite 20/40 Grade Silica Sand
35					SILTY SAND (SM): light olive brown, wet, fine-grained sand	Schedule 40 PVC 0.010 Slot Screen
40					Total Depth = 40'	6" End Cap
45						
50						
55						



WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. AP MW-4**
BORING LOCATION: East of Ash Ponds	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 6/1/16 / DATE FINISHED: 6/1/16
DRILLING METHOD: CME 75 HSA	TOTAL DEPTH (ft.): 50.0 / SCREEN INTERVAL (ft.): 44.5'-49.5'
DRILLING EQUIPMENT: CME 75 8 5/8" OD HSA	DEPTH TO WATER ATD: 48 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY CLAY (CL): dark yellowish-brown, brown, moist, stiff, fine-grained sand, sand fill to 3.5'	
					SANDY CLAY (CH): brown, moist, stiff, fine-grained sand	2" Diameter PVC
5					SANDY CLAY (CH): brown, mottled, moist, firm, clay clasts, fine-grained sand	
10					SANDY CLAY (CL): yellowish-brown, moist, firm, fine-grained sand, few pebbles	
15					SANDY CLAY (CL): olive brown and yellowish-brown, moist, stiff, 3" lignite lense at 14.75' SANDY CLAY (CL): yellowish-brown, moist, stiff, fine-grained sand, bedding planes, yellow and black streaks	Grout
20					SANDY CLAY (CL): yellowish-brown, moist, stiff, fine-grained sand, bedding planes	
					Lignite, black, moist, firm 23.5'-25'	
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP MW-4 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY CLAY (CH): yellowish-brown, moist, soft, fine-grained sand, discontinous lignite lenses	
					Lignite, black, moist, firm 26.5'-30'	
30					SANDY CLAY (CH): olive-brown, moist, fine-grained sand, stiff	
					Perched water at 32'	
					Lignite, black, dry, stiff 34'-37.5'	
35					Interbedded silty sand and sandy clay, thin bedded (1/4" - 1/2"), olive brown, sandy clay, gray silty sand, dry, stiff, fine-grained sand	
					Lignite, black, dry, hard, 6"	Bentonite
40					CLAY (CL): black, dry, hard, blocky, some interbedded black lignite	
						20/40 Grade Silica Sand
45					SANDY CLAY (CL): black, dry, hard, fine-grained sand, platty	
						Schedule 40 PVC 0.010 Slot Screen
					SILTY SAND (SM): dark olive brown, wet, loose, bedding planes, fine-grained sand	
50					Total Depth =50'	6" End Cap
55						

WELL3

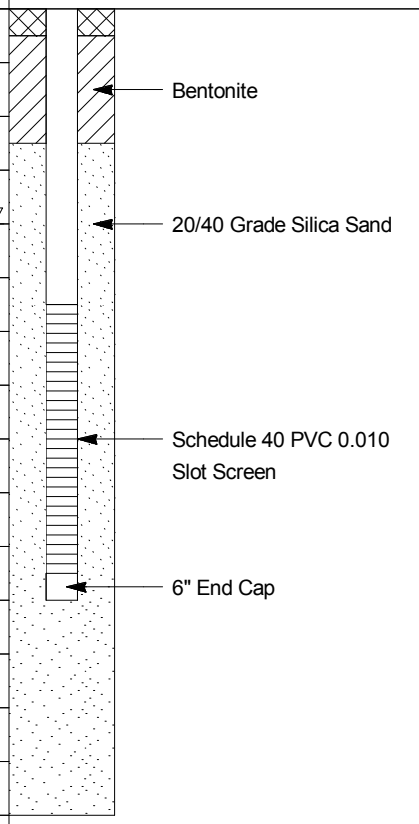
PROJECT: TMPA Gibbons Creek Plant Carlos, Texas		**Log of Well No. AP MW-5**	
BORING LOCATION: East Center of Ash Ponds		GROUND SURFACE ELEVATION AND DATUM: NA	
DRILLING CONTRACTOR: Best Drilling		DATE STARTED: 6/1/16	DATE FINISHED: 6/1/16
DRILLING METHOD: CME 75 HSA		TOTAL DEPTH (ft.): 40.0	SCREEN INTERVAL (ft.): 30.5'-35.5'
DRILLING EQUIPMENT: CME 75 8 5/8" OD HSA		DEPTH TO WATER ATD: 29	CASING:
SAMPLING METHOD: 5' x 4" Core Barrel		LOGGED BY: Daniel B. Haug, P.G.	
HAMMER WEIGHT: NA	DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G.	REG. NO. 1773

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: NA	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Sand and clay fill to 2.5'	
					SANDY CLAY (CH): yellowish-brown, moist, firm to hard, fine-grained sand, some mottling	2" Diameter PVC
5					SANDY CLAY (CH): light yellowish-brown, moist, stiff, trace of small gravel, fine-grained sand	
10					SANDY CLAY (CL): reddish-brown then light yellowish-brown, (14'-15'), moist, stiff, sand lense at 14.5', fine-grained sand	Grout
15					SANDY CLAY (CH): yellowish-brown, moist, firm, fine-grained sand CLAYEY SAND (SC): yellowish-brown, wet, firm, fine-grained sand, few gravel	
20					SANDY CLAY (CL): yellowish-brown, moist, firm, fine-grained sand, clay clasts SANDY CLAY (CH): reddish-brown mottled with grayish-brown, moist, firm, fine-grained sand	
25					SANDY CLAY (CH): brown mottled with few reddish-brown streaks, moist, fine-grained sand, few pebbles	

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP MW-5 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY CLAY (CH): brown, moist, fine-grained sand to small gravel	
					CLAYEY SAND (SC): brown, wet, firm, fine- to coarse-grained sand	
					SANDY CLAY (CL): light yellowish-brown, moist, stiff, fine-grained sand, ferrous staining	
					SANDY CLAY (CL): light yellowish-brown, very moist to wet, medium-grained sand	
					CLAYEY SILTY SAND (SC-SM): dark greenish gray, slightly moist, fine-grained sand	
					Total Depth = 40'	



30
35
40
45
50
55

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. AP MW-6**
BORING LOCATION: West Side of Ash Ponds	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Tolunay-Wong	DATE STARTED: 5/3/17 / DATE FINISHED: 5/5/17
DRILLING METHOD: HSA with Continous Core Barell	TOTAL DEPTH (ft.): 50.0 / SCREEN INTERVAL (ft.): 41'-46'
DRILLING EQUIPMENT: CME 75	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: 5' x 4.25" OD Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
				0.3	Grass at the surface, gravel, sand and clay material to 4.25' (probable fill)	2" Schedule 40 PVC Riser
5					SANDY CLAY (CL): yellowish-brown, moist, stiff, ferrous nodules, trace of caliche, fine-grained sand	
				0.1	SILT (ML) with lignite: reddish-brown, dry, firm, very little recovery	
10					CLAY (CL): reddish-brown, slightly moist, firm Lignite with clay, dark red, slightly moist, firm	
				0.1	SANDY CLAY (CL): yellowish-brown, dry, firm, very fine-grained sand	
15					2" lignite seam, dark reddish-brown, slightly moist, soft CLAY (CH): yellowish-brown, slightly moist to moist, stiff, ferrous staining Interbedded CLAY and LIGNITE (0-CL): black to reddish-brown, dry, frim to hard 1" cemented lenses with gypsum	Bentonite Grout
				1.8		
20					LIGNITE (0) with hard lenses of cemented clay and silt with organics: dark brown, dry, hard	
				2.1		
					SANDY CLAY (CL): dark brown, dry, stiff, very fine-grained sand, numerous thin very fine-grained sand partings, laminated	
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP MW-6 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Interbedded SAND and LIGNITE (SP-0): sand - olive gray, lignite - black, very moist to wet, mostly sand, fine-grained sand	
				2.5	LIGNITE (0): black, dry, hard - Lignite to 30.25'	
30					CLAY (CL): light gray, slighltly moist, hard	Bentonite Grout
				4.3	CLAYEY SAND (SC): very dark grayish-brown, dry, dense, very fine-grained sand, lignite fragments	
35					CLAYEY SAND (SC): olive gray, slightly moist to moist, dense, fine-grained sand, weakly cemented, laminated	Bentonite Chips
				4.9		16/30 Grade Silica Sand
40					Slightly CLAYEY SAND (SC): olive gray, moist to very moist, 42.5'-43' wet, moist below 43' and silty, medium dense, very fine- to fine grained sand	
				4.4		2" Schedule 40 PVC Screen 0.010 Slot
45					Very slightly CLAYEY SILTY SAND (SM): olive gray, moist, dense, fine-grained sand, trace of lignite lenses	5.5" End Cap
				0.6		
					- Sulfur smell	
50					Total Depth = 50"	
55						

WELL3

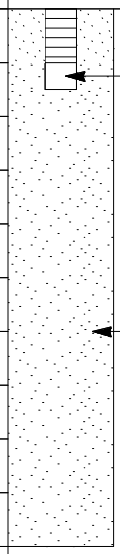
PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. AP PZ-1**
BORING LOCATION: West of Limestone Storage Building	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/24/16 / DATE FINISHED: 5/24/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 35.0 / SCREEN INTERVAL (ft.): 21'-26'
DRILLING EQUIPMENT: 8 5/8" OD HSA Truck Mounded Rig	DEPTH TO WATER ATD: 21 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation:	
					6" ash	
					Sandy clay with few small gravel fill to 2"	
					SANDY CLAY (CH): yellowish-brown, moist, stiff, fine- to coarse-grained sand	2" Diameter PVC
5					CLAYEY SAND (SC): light yellowish-brown, moist, stiff, fine-grained sand	Grout
					0.5" sandstone lense at 9.25'	
10					CLAYEY SAND (SC): light yellowish-brown, slightly moist, stiff, fine-grained sand	
					sandstone nodules and 0.5" sand lense at 12'-12.5'	
					- trace of ferrous staining	
15					- interbedded sand and sandy clay	
					CLAYEY SAND and SAND (SP, SC) olive-gray, dry to moist, loose to firm	
					CLAY (CL): brown, dry, hard, with interbedded sand and clay	Bentonite
					SILTY SAND (SM): brown, dry, loose to firm, fine-grained sand, clay lenses	
20					CLAY (CL): yellowish-brown, dry, hard, thin fine-grained sand lenses, trace of pebbles	20/40 Grade Silica Sand
					CLAYEY SAND with sandstone lenses, brown, wet, dense, fine-grained to small gravels size	
					SANDY CLAY (CL): brown, dry, hard, fine-grained sand lamina	
					SILTY SAND (SM): olive gray, moist, loose to firm, fine-grained sand	Schedule 40 PVC 0.010 Slot Screen
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP PZ-1 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY SAND (SM): light olive gray, wet, hard, fine-grained sand, very thin lignite seams	 6" End Cap
					CLAY (CH): olive, dry, hard, blocky	
30					CLAY (CH): olive, dry, hard, blocky	20/40 Grade Silica Sand
35					Total Depth = 35'	
40						
45						
50						
55						

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. AP PZ-2**
BORING LOCATION: North of Fly Ash Silos	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/23/16 / DATE FINISHED: 5/24/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 40.0 / SCREEN INTERVAL (ft.): 34'-39'
DRILLING EQUIPMENT: 8 5/8" OD HSA 2" Rods	DEPTH TO WATER ATD: 39 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					SILTY SAND (SM): dark gray, slightly moist, loose, fine- to coarse-grained sand, roots, fly ash	
					SILTY SANDY CLAY (CH): brown, moist, firm, fine- to coarse-grained sand	
					SILTY SANDY CLAY (CL): brown, moist, firm, fine- to coarse-grained sand, increasing sand content	2" Diameter PVC
5					SANDY CLAY (CH): yellowish-brown, moist, soft, fine- to coarse-grained	
					SILTY SANDY CLAY (CH): yellowish-brown, moist, hard, fine-grained sand, ferrous staining - lignite seam 9'-9.5'	
10					CLAYEY SAND (SC): light olive brown, dry, dense, fine- to medium-grained sand, wood fragments	
					SILTY CLAYEY SAND (SC): light yellowish-brown, moist, firm, fine-grained sand	
					SANDY CLAY (CH): yellowish-brown, dry, hard, fine-grained sand, lignite seam (thin)	
15					CLAYEY SILTY SAND (SM): gray, wet, firm, fine-grained sand	Grout
					SANDY CLAY (CH): light yellowish-brown, dry, hard, layered, fine-grained sand	
20					SILTY SANDY CLAY (CL): light olive brown, dry with few moist intervals, hard to very stiff, fine-grained sand, drier after 22'	
25						

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP PZ-2 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY SAND (SM): light olive brown, very moist, fine-grained sand, soft	
					Sligthly SANDY CLAY (CH): brown, dry, hard, fine-grained sand lenses - increased sand content with depth	
30					SILTY SAND (SM): light olive brown, moist, fine-grained sand, firm	
					CLAYEY SILTY SAND (SM): light olive gray, very moist, firm, 1/4" lignite seams, fine-grained sand	Bentonite
					SANDY CLAY (CL): light olive brown, moist to dry, hard, fine-grained sand, very hard lenses, organics (wood) in sandstone	20/40 Grade Silica Sand
35					SILTY SAND (SM): light olive brown, wet to 39', tan lignite lenses (1/4"), fine-grained sand	Schedule 40 PVC 0.010 Slot Screen
					CLAY (CH): brown, moist, hard	6" End Cap
40					Total Depth = 40'	
45						
50						
55						

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. AP PZ-3**
BORING LOCATION: North of Ash Ponds	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/25/16 / DATE FINISHED: 5/25/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 40.0 / SCREEN INTERVAL (ft.): 34.5'-39.5
DRILLING EQUIPMENT: 8 5/8" OD HSA Truck Mounded Rig	DEPTH TO WATER ATD: 25 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY CLAY with Gravel (CH): yellowish-brown, moist, very stiff, fine-grained sand, few small gravel, probably fill	
					SANDY CLAY (CL): olive brown, moist, very stiff, fine-grained sand	2" Diameter PVC
5					SANDY CLAY (CL): light olive brown, slightly moist to moist at 9', firm, layered, fine-grained sand	
10					SANDY CLAY (CL): light olive brown, moist to wet above underlying clay, fine-grained sand, loose CLAY (CH): light olive brown, dry, blocky, hard, layered SILTY SAND (SM): light olive brown, wet, fine-grained sand	
15						Grout
20					SILTY SAND (SM): light olive brown, wet, fine-grained sand, layered	
25					- interbedded sand and siltstone	

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. AP PZ-3 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY SAND (SM): light olive brown, wet, fine-grained sand, hard siltstone at 28.75' to 29' and 1" lense at 27.5' ferrous staining around siltstone lenses	
30					SILTY SAND (SM): light olive brown, wet, loose, fine-grained sand Sandstone, light to olive brown, wet, hard, platy 32.5'-33'	Bentonite
					SILTY SAND (SM): light olive brown, wet, loose, fine-grained sand Sandstone, pale yellow, wet, hard, platy 34'-34.5	20/40 Grade Silica Sand
35					SILTY SAND (SM): light olive brown, wet, loose, fine-grained sand	
					Siltstone, olive brown, wet, hard, platy 36.5'-36.75' SILTY SAND (SM): light olive brown, wet, loose to firm, fine-grained sand SILTY SAND (SM): olive gray, wet, firm, fine-grained sand, layered	Schedule 40 PVC 0.010 Slot Screen
40					CLAY (CH): olive gray, dry, hard, blocky Total Depth = 40'	6" End Cap
45						
50						
55						

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. AP PZ-4**
BORING LOCATION: Southwest Corner of Ash Ponds	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 6/2/2016 / DATE FINISHED: 6/2/2016
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 45.0 / SCREEN INTERVAL (ft.): 38.5'-43.5'
DRILLING EQUIPMENT: 8 5/8" OD HSA Truck Mounded Rig	DEPTH TO WATER ATD: 40 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Clay and gravel fill to 3'	
					SANDY CLAY (CL): light yellowish-brown, moist, stiff, fine-grained sand	2" Diameter PVC
5					Interbedded sandstone and SANDY CLAY (CL): light yellowish-brown, moist, hard, fine-grained sand	
					SANDY CLAY (CL): light yellowish-brown, moist, stiff, fine-grained sand, ferrous partings	
10					SANDY CLAY (CL): light yellowish-brown, moist, stiff to 14.5', hard to 15', fine-grained sand, ferrous staining, reddish-brown with increased clay content at 14.5-15'	
15					SANDY CLAY (CL): olive brown, dry, hard, very fine-grained sand, discontinous silt and sand partings	Grout
20					SANDY CLAY (CL): olive brown, dry, very stiff, fine-grained sand	
					Lignite, black, dry, hard 23.5'-25' - 2" sand and clay lenses	
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

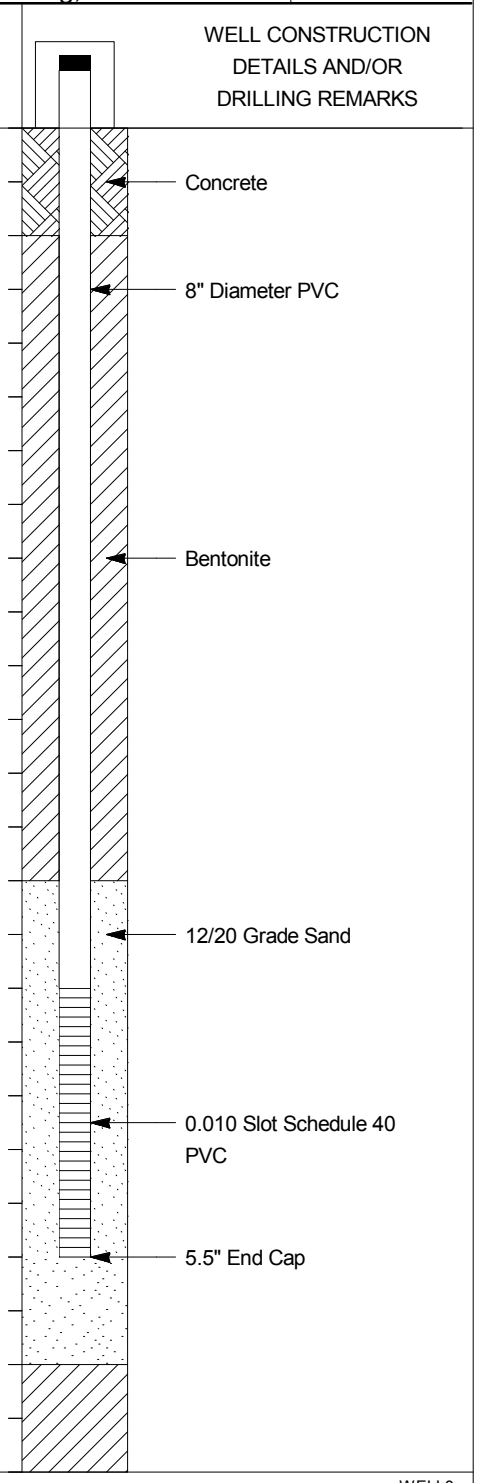
Log of Well No. AP PZ-4 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Lignite, dark brown and black, dry, stiff, few interbedded ironstone, sand, clay (thin beds-large majority lignite 25'-30')	
30					Sandstone: olive brown, moist, hard	
					Lignite, brown to dark brown, dry, stiff 31'-32.75' Interbedded olive brown sand, brown clay and lignite Lignite, brown to dark brown, dry, stiff, platy 33'-35' Lignite, brown to dark brown, dry, stiff, blocky 35'-36'	Bentonite
35					Interbedded sandy clay, lignite (thin beds), medium gray sand, fine-grained sand, dark brown clay and lignite	20/40 Grade Silica Sand
					Lignite, brown to dark brown, dry, stiff, blocky 39'-40'	
40					Sand interbedded with lighnite, black, wet, loose, fine- to medium-grained Lignite, black dry, very stiff 41'-41.75 SANDY SILT (ML): olive gray, slightly moist, stiff, very fine-grained sand	Schedule 40 PVC 0.010 Slot Screen 6" End Cap
45					Total Depth = 45'	
50						
55						

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SFL MW-2**
BORING LOCATION: South Side of Landfill F, West of Outfall	GROUND SURFACE ELEVATION AND DATUM: 269'
DRILLING CONTRACTOR: Vortex Drilling	DATE STARTED: 3/16/16 / DATE FINISHED: 3/16/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 50.0 / SCREEN INTERVAL (ft.): 16'-21'
DRILLING EQUIPMENT: 4 1/4 ID HSA (8" Borehole)	DEPTH TO WATER ATD: 17.5' / CASING:
SAMPLING METHOD: Split Spoon	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: NA
0			1/1/4	0.0	CLAY CH): dark gray, moist, soft, grading to yellowish-brown at 2'
			3/7	0.0	CLAYEY SILTY SAND (SM-SC): light yellowish-brown, dry, hard, platy, fine-grained sand
			50/1"		
5			50/1"		SANDY SILT (ML): pale yellow, moist, hard, very fine-grained sand
				3.0	SILT (ML): pale yellow, moist, hard, very fine-grained sand
			50/5"	3.0	
10			21/35	0.8	SILT (ML): pale yellow, moist to wet, hard, very fine-grained sand
					SANDY SILT (ML): pale yellow, moist to wet, hard, wet to 13', then very moist, siltier-a trace of clay (unconsolidated)
			11/ 24/ 30	5.0	
15			30/ 50/2"	4.3	SILTY SAND (SM): light yellowish-brown, moist, hard, unconsolidated, very fine- to fine-grained sand, trace iron oxide staining
					SILTY SAND (SM): light yellowish-brown, moist to wet, hard, unconsolidated, very fine- to fine-grained sand, iron oxide staining 19-20'
			19/ 31/ 32	3.8	
20			20/ 50/4"	3.9	SANDY SILTY (SM): light yellowish-brown, wet, unconsolidated, hard, iron oxide staining
					SILTY CLAY (CL): brown, dry, hard at 22.25 SANDY SILTY CLAY (CL): dark gray, dry, hard, bedding planes
			41/ 60/6"	2.3	SANDY SILTY CLAY (CL): dark gray, dry, hard, bedding
25					



WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. SFL MW-2 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
			20/ 50/5"	3.7	CLAY (CH): dark gray, dry, hard, lenses of sandy clay, fine-grained sand SANDY CLAY (CL): olive gray, moist (clayey interval, dry), hard, fine-grained sand	
			15/ 21/ 37	3.2	SANDY CLAY (CL): olive gray, dry, hard, fine-grained sand	
30			15/ 21/ 21	2.0	Slightly SANDY CLAY (CL): dark gray, dry, hard, fine-grained sand	
			12/ 29/ 40	2.5	SILTY CLAY (CH): dark gray, dry, hard, thin linear structures in the clay	
35			20/20 60/6"	2.0	SILTY CLAY (CH): olive gray, dry, hard, silt lenses at 35.5', moist	Bentonite
			10/ 17/ 17	1.1	SILTY CLAY (CH): olive gray, dry, hard, silt lenses <1/4, thin, dry	
40			10/ 11/ 15	1.9	SILTY CLAY (CH): olive gray, moist, firm to hard, few silt partings	
			8/ 12/ 15	2.1	SILTY CLAY (CH): olive gray, moist, firm to hard, few silt partings, one pyrite nodule	
45			12/ 12/ 17	2.2	CLAY (CH): olive gray, moist, firm to hard, silt partings	
			10/ 12/ 31	2.2	CLAY (CH): olive gray, moist, firm to hard, few silt partings	
50					Total Depth = 50'	
55						

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SFL MW-3**
BORING LOCATION: Southeast of Landfill F	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/31/16 / DATE FINISHED: 5/31/16
DRILLING METHOD: CME 75 HSA (Buggy Rig)	TOTAL DEPTH (ft.): 25.0 / SCREEN INTERVAL (ft.): 19.5'-24.5'
DRILLING EQUIPMENT: CME 75 8 5/8" OD HSA	DEPTH TO WATER ATD: 22 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY SAND (SM): light yellowish-brown, moist, loose, fine-grained sand, trace ferrous staining	2" Diameter PVC
5					SANDY CLAY (CH): brown mottled with blackish-brown, moist, firm, fine-grained sand, minor ferrous staining SANDY CLAY (CH): brown, mottled, moist, firm, fine-grained sand	Grout
10					SANDY CLAY (CL): yellowish-brown, slightly moist, fine-grained sand, bedding planes, stiff Slightly SANDY SILTY CLAY (CL): yellowish-brown, slightly moist, very firm, fine-grained sand	
15					SANDY SILTY CLAY (CL): yellowish-brown, slightly moist, stiff, very fine-grained sand, few bedding planes	Bentonite 20/40 Grade Silica Sand
20					Interbedded sandy clay and sandstone, reddish-brown, hard to very stiff, fine-grained sand SILTY SAND (SM): light olive brown, wet, loose to firm, fine-grained sand	Schedule 40 PVC 0.010 Slot Screen
25					CLAY (CL): light to olive green, dry, hard Total Depth = 25'	6" End Cap

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SFL MW-4**
BORING LOCATION: South of Landfill F	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/31/16 / DATE FINISHED: 5/31/16
DRILLING METHOD: CME 75 HSA	TOTAL DEPTH (ft.): 40.0 / SCREEN INTERVAL (ft.): 34.5'-39.5
DRILLING EQUIPMENT: CME 75 8 5/8" OD HSA	DEPTH TO WATER ATD: 36 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					CLAYEY SAND (SC): medium gray, moist, firm, fine-grained sand Interbedded silty sand and sandstone, medium gray, slighly moist, firm to hard, fine-grained CLAYEY SILTY SAND (SC-SM): medium gray, slighty moist, very firm, fine-grained sand	2" Diameter PVC
5					SANDY CLAY (CL): light olive brown, dry, hard, fine-grained sand, ferrous staining SANDY SILTY CLAY (CL): light olive brown, slightly moist, very fine-grained sand	
10					SANDY SILTY CLAY (CL): light olive brown, slightly moist, very fine-grained sand, minor ferrous staining	
15					SANDY SILTY CLAY (CL): brown, dry, very stiff, bedding planes, fine-grained sand	Grout
20					SANDY CLAY (CL): dark olive brown, dry, hard, bedding planes, trace of gypsum, fine-grained sand Lignite lense, dark gray to balck, loose to firm	
					SILTY SAND (SM): light olive gray, slightly moist, fine-grained sand, bedding planes, firm	
25						

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. SFL MW-4 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
30					SILTY SAND (SM): light olive gray, dry, very fine-grained sand, 25'-26' interbedded siltstone CLAYEY SANDY SILT (ML): dark gray, dry, fine-grained sand, discontinous thin sand lenses SANDY SILTY CLAY (CL): dark gray, dry, very fine-grained sand, discontinuous thin silt lenses	Grout Bentonite 20/40 Grade Silica Sand
35					Interbedded clay and sand; clay, black, dry, hard; sand, olive gray, dry, loose, very fine-grained sand SAND (SP): olive gray, wet, loose, very fine-grained sand SILTY SAND (SM): olive gray, dry, firm, fine-grained sand	▽ Schedule 40 PVC 0.010 Slot Screen 6" End Cap
40					Total Depth = 40'	
45						
50						
55						

WELL3

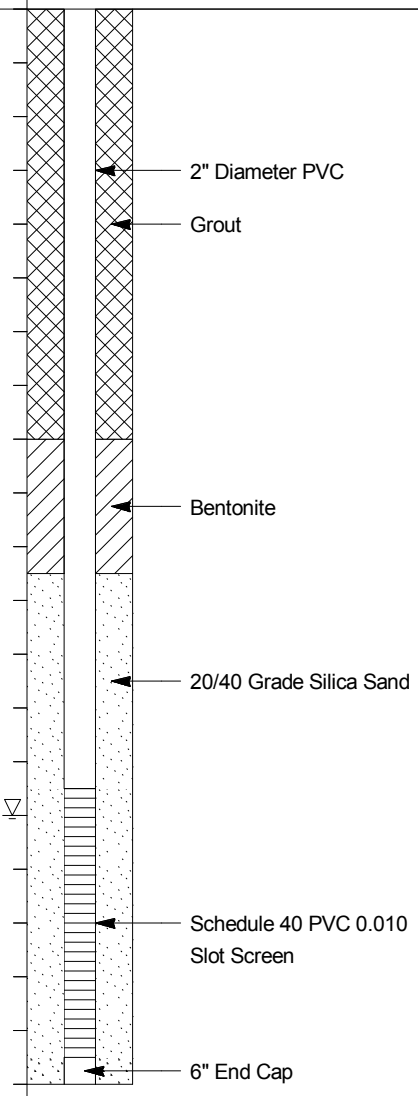
PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SFL MW-5**
BORING LOCATION: Landfill F	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/23/16 / DATE FINISHED: 5/23/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 25.0 / SCREEN INTERVAL (ft.): 16'-21'
DRILLING EQUIPMENT: 8 5/8" OD HSA 2" Rods	DEPTH TO WATER ATD: 16 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation:	
					SILTY SAND (SM): dark grayish-brown, moist, loose, fine-grained sand, roots	
					SANDY CLAY (CH): dark yellowish-brown, moist, soft, fine-grained sand, roots	
					SILTY SANDY CLAY (CL): yellowish-brown, dark yellowish-brown lenses, moist, fine-grained sand, firm	2" Diameter PVC
5					SILTY SANDY CLAY (CL): yellowish-brown, dry, hard, very fine-grained sand, ferrous staining	Grout
					SILTY SAND (SM): light brownish-gray, mottled with brownish-yellow, soft, moist (slightly) increasing clay content to 8.5', fine-grained sand	
					Slightly CLAYEY SILTY SAND (SM): light olive brown, loose, moist, fine-grained sand	
10					Slightly CLAYEY SILTY SAND (SM): light olive brown, slightly firm, moist, trace of pebbles	Bentonite
15					SILTY SAND (SM): light olive brown, wet to very moist, firm, faint stratification, fine-grained sand	20/40 Grade Silica Sand ▽
					SANDSTONE (SS): light yellowish-brown, dry, hard, ferrous staining along fractures, layered	Schedule 40 PVC 0.010 Slot Screen
20					Shale (SILTY CLAY) (CL): gray, dry, hard, very fine-grained sand, silt partings	6" End Cap
25					Total Depth = 25'	

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SFL MW-6**
BORING LOCATION: Southwest Corner of Landfill	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/23/16 / DATE FINISHED: 5/23/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 20.0 / SCREEN INTERVAL (ft.): 14.5'-19.5
DRILLING EQUIPMENT: 8 5/8" OD HSA Truck Mounded Rig	DEPTH TO WATER ATD: 15 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.
					Surface Elevation:
					Sandy Clay fill, few gravel fill to 4.5'
5					SANDY SILTY CLAY (CL): pale brown, dry, hard, dark gray partings, very fine-grained sand
					CLAYEY SAND SILT (ML): pale brown, dry, very stiff to hard, dark gray clay partings, fine-grained sand, increased ferrous staining after 8', few sand partings, wood fragments in a few partings
10					SILTY SANDY CLAY (CH): pale brown, dry, hard, light brown partings to reddish-brown, fine-grained sand, ferrous staining
15					Layered SILTY SAND (SM) and SANDY SILTY CLAY (CL): pale brown, some brown layers after 17', very moist to dry, fine-grained sand
20					SANDY SILTY CLAY (CL): gray silt and sand, dark gray clay, layered, dry, hard, very fine sand
					Total Depth = 20'
25					



WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SFL MW-7**
BORING LOCATION: Southeast Side of Landfill F	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Tolunay-Wong	DATE STARTED: 5/2/17 / DATE FINISHED: 5/3/17
DRILLING METHOD: HSA with Continous Core Barell	TOTAL DEPTH (ft.): 55.0 / SCREEN INTERVAL (ft.): 50'-55'
DRILLING EQUIPMENT: CME 75	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: 5' x 4.25" OD Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Grass at surface	
				2.6	SILTY SAND (SM): yellowish-brown, dry, firm, very fine-grained sand (fill)	
5						8" Diameter PVC
				1.1	SANDY CLAY (CH): gray, slightly moist, firm, very fine-grained sand	
10					SANDY CLAY (CH): brown, slightly moist to moist, firm, olive gray mottling and some ferrous staining, very fine-grained sand, fill to approximately 12'	
				0.8	SANDY CLAY (CL): brown, slightly moist, very fine-grained sand, some lammination, couple of thin greenish-gray sand lenses	
15					CLAY (CL): dark brown, slightly moist, very fine-grained sand intervals (thin)	
				0.4	SANDY CLAY (CL) with lignite fragments: very dark brown, hard, very fine-grained sand, slightly moist to dry	
20					- Layered sand and clay with lignite 19.5'-20', very dark brown to light gray, hard, slightly moist, pyrite nodules	Bentonite Grout
				0.8	CLAY (CH): very dark gray, dry, hard, very thin sand lenses, greenish-gray, lignite fragments along bedding planes, platy	
25					CLAY (CH) with interbedded thin sand lenses: very dark gray, dry, hard, very fine-grained sand, lignite fragments along bedding planes in the clay, clay breaks along horizontal laminae, platy	
				0.4		
30						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. SFL MW-7 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35				0.3	CLAY (CL): with numerous thin sand lenses interbedded with clay: very dark gray clay, greenish-gray sand, dry, hard, lignite fragments along bedding planes in the clay, very fine-grained sand, platy	2" Schedule 40 PVC Riser
				0.3	CLAY (CH): with sand partings: very dark gray, dry, hard, very fine-grained sand, lignite fragments along bedding planes in the clay, platy, sand greenish-gray	
40				0.2	CLAY (CH) with SAND partings: very dark gray, dry, hard, very fine-grained sand, lignite fragmenst along bedding planes in the clay, platy, sand greenish-gray	Bentonite Chips
45					SAND (SP): olive gray, wet, loose, fine- to very fine-grained sand	
				0.2	CLAY (CH): dark greenish-gray, dry to hard at 46' CLAY (CH): very dark gray, dry, hard, platy	16/30 Grade Sand
50				0.2	SILTY SAND (SM): dark gray, wet, loose, very fine- to fine-grained sand Interbedded SAND (SP) and lignite: olive gray, wet, loost to firm 2" lignite seam SAND (SP) with thin lignite lenses, olive gray, wet, loose to firm	2" Schedule 40 PVC Screen 0.010 Slot
55					Total Depth = 55'	5.5" End Cap
60						
65						

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SSP/AP MW-1**
BORING LOCATION: North of Sludge Pond	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 5/25/16 / DATE FINISHED: 5/26/16
DRILLING METHOD: HSA	TOTAL DEPTH (ft.): 40.0 / SCREEN INTERVAL (ft.): 29.5'-39.5'
DRILLING EQUIPMENT: 8 5/8" OD HSA Truck Mounded Rig	DEPTH TO WATER ATD: 30 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Silty sand, fly ash and sandy clay, fill to 3.5'	2" Diameter PVC
					SANDY CLAY (CL): light yellowish-brown, moist, very stiff, fine-grained sand	
5					SILT (ML): yellowish-red, moist, firm to hard, after 3" grading to clay, yellowish-red, moist, hard	
					SANDY CLAY (CL): reddish-brown, moist, very stiff, fine-grained sand	
10					Slightly SANDY CLAY (CH): reddish-brown, moist, very stiff, very fine-grained sand	Grout
					Lignite, black, dry, hard 12'-16'	
15					Slightly SANDY CLAY (CH): dark grayish-brown, dry, hard, very fine-grained sand	
20					SANDY CLAY (CL): dark grayish-brown, moist, hard, fine-grained sand, lithofied sandy lenses from 20.5' to 25', sandier and softer toward 25', platy where hard	
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. SSP/AP MW-1 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY SAND (SM): dark olive brown, slightly moist, hard, platy when hard, fine-grained sand	Bentonite; 20/40 Grade Silica Sand
30					Slightly SILTY SAND (SM): dark olive brown, wet, loose, fine-grained sand	▽
35					CLAYEY SILTY SAND (SM-SC): dark olive brown, dry to moist, fine-grained sand, firm	Schedule 40 PVC 0.010 Slot Screen
40					Total Depth = 40'	6" End Cap
45						
50						
55						

WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SSP MW-2**
BORING LOCATION: West of Center of Scrubber Sludge Pone	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 6/2/06 / DATE FINISHED: 6/2/06
DRILLING METHOD: CME 75 HSA	TOTAL DEPTH (ft.): 45.0 / SCREEN INTERVAL (ft.): 38.5'-43.5'
DRILLING EQUIPMENT: CME 75 8 5/8" OD HSA	DEPTH TO WATER ATD: 30 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

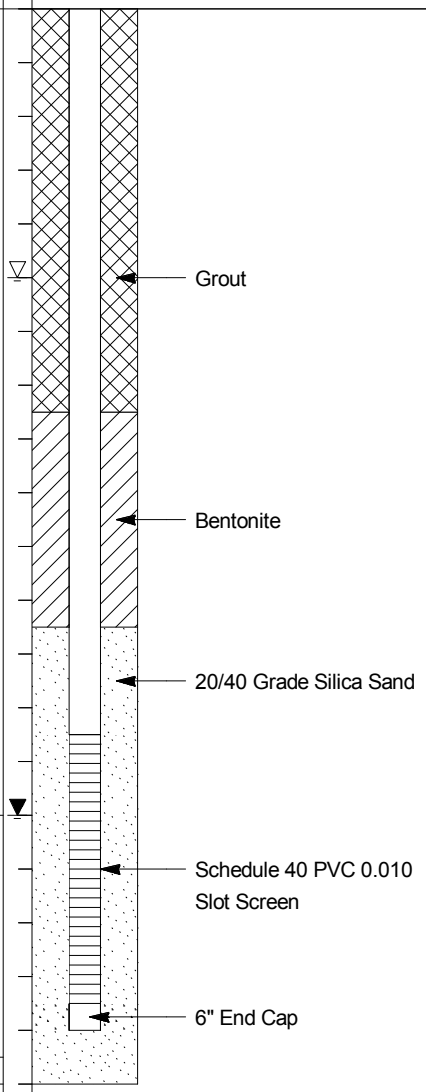
DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					9" ash, black, loose SANDY CLAY (CL): yellowish-brown, moist, firm, fine-grained sand, few pebbles	2" Diameter PVC
5					SANDY CLAY (CL): medium gray, moist, firm, fine-grained sand, few pebbles SANDY CLAY (CL): brown, moist, firm, fine-grained sand, few small gravel	
10					SANDY CLAY (CH) with small gravel: brown, moist, firm to stiff, fine-grained sand with pebbles and small gravel, clay clasts, some red and greenish-gray streaking, trace yellow nodules	
15					SANDY SILTY CLAY (CL): brown, moist, stiff, fine-grained sand, trace roots, few bedding planes	Grout
20					SILTY SAND (SM): light olive brown, moist, firm, fine-grained sand, bedding planes, brown organic lenses, very thin	
25						

WELL3

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. SSP MW-2 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					CLAYEY SILTY SAND (SC-SM): light olive brown, moist, firm, fine-grained sand	
30					SILTY SAND (SM): light olive brown, wet, 30'-33', sandstone at 33', fine-grained sand	Grout
					Slightly SILTY SAND (SM): light olive brown, slightly moist, firm, fine-grained sand	Bentonite
35						20/40 Grade Silica Sand
40					SANDY CLAY (CH) with few gravel: reddish-brown, wet, firm	Schedule 40 PVC 0.010 Slot Screen
					SANDY CLAY (CH): dark olive brown, moist, stiff, fine-grained sand	6" End Cap
45					CLAYEY SILTY SAND (SM-SC): dark olive brown, dry, dense, fine-grained sand	
					Total Depth = 45'	
50						
55						



WELL3

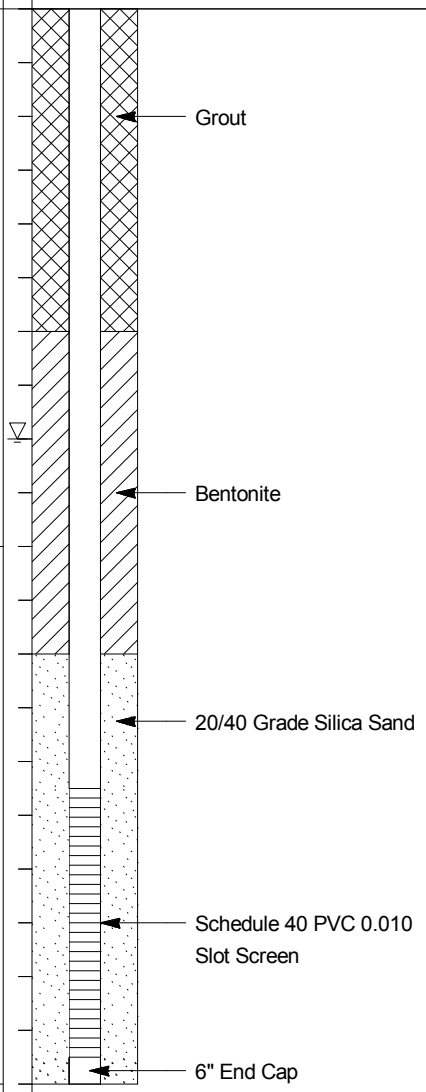
PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SSP MW-3**
BORING LOCATION: Southwest Corner of Scrubber Sludge Pond	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 6/3/16 / DATE FINISHED: 6/3/16
DRILLING METHOD: CME 75 HSA	TOTAL DEPTH (ft.): 45.0 / SCREEN INTERVAL (ft.): 39.5'-44.5'
DRILLING EQUIPMENT: CME 75 8 5/8" OD HSA	DEPTH TO WATER ATD: 33 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Gravelly sandy clay at surface to 1.5'	
					SANDY CLAY (CL): yellowish-brown, moist, stiff, fine-grained sand	2" Diameter PVC
5					SANDY CLAY (CL) with gravel: yellowish-brown, moist, stiff, fine-grained sand	
10					CLAY and SANDY CLAY (CL-CH): yellowish-brown, reddish-brown, reddish-gray layers (fill), moist, stiff, fine-grained sand	
					Probably fill above 14'	
15					Slightly SANDY CLAY (CH): olive gray to 17.5', moist, stiff, fine-grained sand	Grout
					SANDY CLAY (CL): reddish-yellow, moist, stiff, fine-grained sand	
20					SANDY CLAY (CL): light reddish-brown, dry, stiff, fine-grained sand	
25						

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. SSP MW-3 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY CLAY (CL): light brown, dry, hard	
					Sandstone, light brown, dry, hard 29.5'-30'	
30					1" of sandstone in core barrel, loose, fine-grained wet sand washed out of core barrel	
35					SILTY SAND (SM): light olive brown, wet, soft, fine-grained sand	
40					SILTY SAND (SM): light olive brown, wet, soft, fine-grained sand 1" lignite seam, brown, wet, soft at 41.75, very thin lignite lenses at 42' and 43.5'	
45					SILTY SAND (SM): light olive brown, wet, stiff, fine-grained sand Total Depth = 45'	
50						
55						



WELL3

PROJECT: TMPA Gibbons Creek Plant Carlos, Texas	**Log of Well No. SSP MW-4**
BORING LOCATION: Southeast Corner of Scrubber Sludge Pond	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling	DATE STARTED: 6/3/16 / DATE FINISHED: 6/3/16
DRILLING METHOD: CME 75 HSA	TOTAL DEPTH (ft.): 50.0 / SCREEN INTERVAL (ft.): 43'-48'
DRILLING EQUIPMENT: CME 75 8 5/8" OD HSA	DEPTH TO WATER ATD: 44.75 / CASING:
SAMPLING METHOD: 5' x 4" Core Barrel	LOGGED BY: Daniel B. Haug, P.G.
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Daniel B. Haug, P.G. / REG. NO. 1773

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation:	
					Sand, gravel, clay fill	
					SANDY CLAY (CH): layered yellowish-brown, moist, stiff, fine-grained sand, probable fill	2" Diameter PVC
5					SANDY CLAY - CLAYEY SAND (CH-SC): brown, moist, firm, fine-grained sand, probable fill	
10					SANDY CLAY (CH): brown and olive brown layered (fill); moist, stiff, fine-grained sand	
					Probably fill above 14'	
15					SANDY CLAY (CL): yellowish-brown, moist, firm, fine-grained sand, black organic streaks	Grout
20					SANDY CLAY (CH): yellowish-red, very moist, fine-grained sand, soft CLAY (CH): dark reddish-brown, moist, firm	
					Lignite, black, moist, firm 22.5'-23'	
25					SANDY CLAY (CL): light yellowish-brown, moist, stiff, fine-grained sand	

PROJECT: TMPA Gibbons Creek Plant
Carlos, Texas

Log of Well No. SSP MW-4 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY CLAY (CL): light yellowish-brown, moist, very stiff, fine-grained sand, ferrous streaks	
30					SANDY CLAY (CL): light yellowish-brown, moist, vey stiff, fine-grained sand, ferrous streaks	Grout
35					Lignite, black, moist, firm 34.75'-35.25' SANDY CLAY (CL): dark grayish-brown, dry, hard, fine-grained sand	
					Lignite, dark brown, dry, hard 38.25'-38.75	
40					SANDY CLAY (CL): dark grayish-brown, dry, hard, fine-grained sand, interbedded black clay lenses Interbedded sand and clay to 44.75'; CLAY (CH): black, dry, hard and; SAND (SP): olive gray, dry, dense	Bentonite 20/40 Grade Silica Sand
45					SAND (SP): olive gray, moist, dense, fine-grained sand, wet	▽ Schedule 40 PVC 0.010 Slot Screen
					SANDY CLAY (CL): dark gray, moist, wet at 45'-46' (sandier interval), moist to dry below 46', hard, fine-grained sand	6" End Cap
50					Total Depth = 50'	
55						

WELL3

BLACK & VEATCH
CONSULTING ENGINEERS

PIEZOMETER INSTALLATION LOG

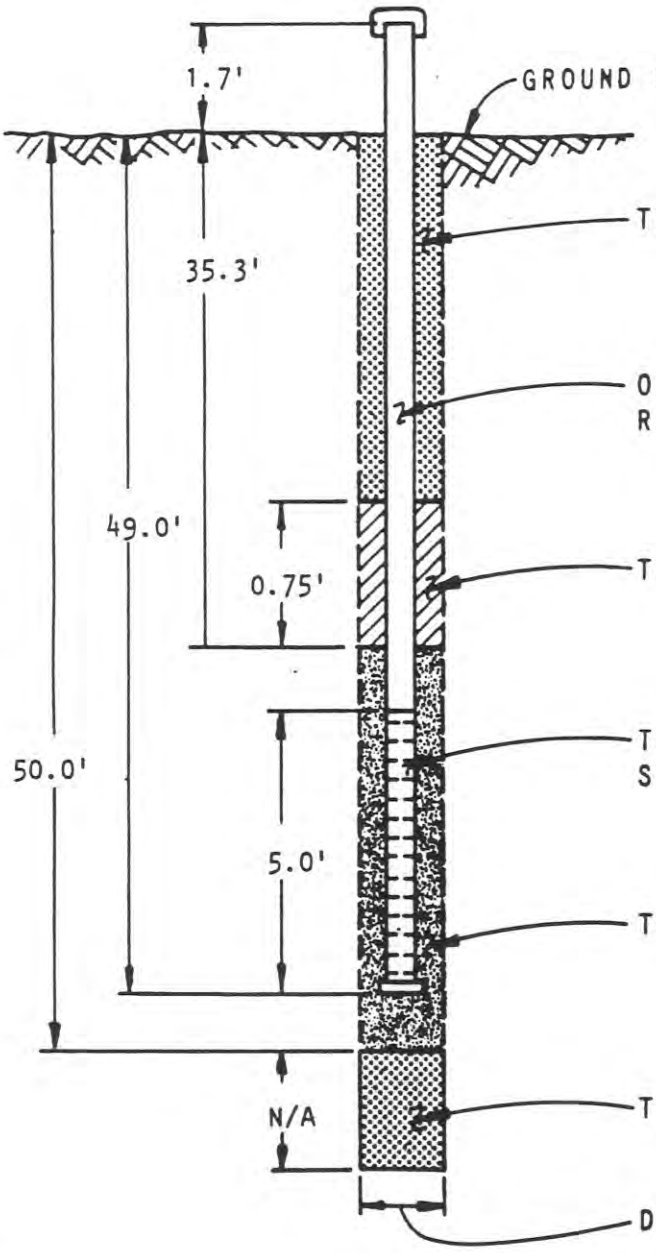
PIEZOMETER NO. B-11

CLIENT	PROJECT	PROJECT NO
Texas Municipal Power Agency	Gibbons Creek	14578

PROJECT LOCATION	COORDINATES	GROUND ELEVATION	DATE
Carlos, Texas	N378330 E3339148	266.8'	2-26-88

STRATUM MONITORED	INSPECTOR
Sandstone and clay	K. M. Blevins-McCosh

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh



TYPE OF SEAL	Volclay Grout and Initiator Cement/Bentonite
O.D. & TYPE OF RISER PIPE	2" PVC glued joints Schedule 40
TYPE OF SEAL	Bentonite Pellets 1/2"
TYPE AND SIZE OF SCREEN OR OPENINGS	.01" Slots
TYPE OF FILTER	Pea gravel
TYPE OF SEAL	N/A
DIAMETER OF BOREHOLE	4 1/2"

METHOD OF INSTALLATION: Boring drilled to completion; set riser pipe and screen; placed filter and seal; grouted to surface; poured surface pad

REMARKS: Installed piezometer in fluid-filled hole; added approximately 2 gallons of bentonite pellets for seal but only 9" arrived at 35'- rest hung up- didn't have any more bentonite developed well on 2-27-88 by flushing w/clean water for 3 minutes and blowing it out w/air

P-ST-021

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-11
SHEET 1 of 2

CLIENT: Texas Municipal Power Agency		PROJECT: Gibbons Creek SES	PROJECT NO.: 14578
PROJECT LOCATION: Carlos, Texas	COORDINATES: N378329 E3339148	ELEVATION (DATUM): 266.7' / TOTAL DEPTH: 50'	DATE START: 2-26-88
SURFACE CONDITIONS: Clearing in woods		INSPECTOR: K. M. Blevins-McCosh	DATE FINISH: 2-26-88
		CHECKED BY: M. C. Schluter	APPROVED BY: L. J. Almaleh

SAMPLING							CORING						
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD
TW	1					1.6							
TW	2					0.8							
TW	3					1.1							
TW	4					1.2							
TW	5					1.4							
TW	6					1.2							
TW	7					1.5							
TW	8					1.3							
TW	9					1.5							
TW	10					1.5							
TW	11					1.8							
TW	12					1.9							
TW	13					1.9							
TW	14					1.7							
TW	15					2.0							

DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
1		Silty CLAY; reddish-brown; stiff; high plasticity; moist; organics; roots; iron staining (Top soil)	Advanced boring w/4 1/2" rotary wash
2			
3		Grading brown w/some sand; trace gravel below 2'	pp. 2.75
4		Grading w/some sandstone seams and some gravel w/trace roots below 4'	
5			
6			
7		Sandy CLAY; tan to buff; stiff; low plasticity; moist; iron stained; w/trace gravel and some silt	
8			
9		Clayey SILT; tan to buff; hard; high plasticity; moist; some sand; iron staining especially on joints; joints spaced 2-6" horizontal	
10			
1		Interbedded with silty sand below 10'	
2		Grading tan to brown with iron nodules and few cemented sand fragments; platy below 12'	
3			
4		Blocky structure below 14'	
15		Cemented sand grades out below 14';	
6			
7			
8		Cemented sand layer at 18'	
9		CLAY; greenish-grey; hard; high plasticity; moist w/silt filled joints and some silt; trace sand; trace lignite 22'-24'	
20			
1			
2			
3		Grading greenish-grey and dark grey banded below 23'	
4			
25			
6		Slickensided below 26'	
7			
8			
9			
30			

P-STD

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-11
SHEET 2 of 2

CLIENT	PROJECT	PROJECT NO.
Texas Municipal Power Agency	Gibbons Creek SES	14578

PROJECT LOCATION	COORDINATES	ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N378329 E3339148	266.7'	50'	2-26-88

SURFACE CONDITIONS	INSPECTOR	DATE FINISH
Clearing in woods	K. M. Blevins-McCosh	2-26-88

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh

SAMPLING							CORING						DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD			
TW	16					1.8							1			
TW	17					1.9							2		Trace pyrite below 32'	pp. 4+
TW	18					1.9							3 4		Bands grading out below 34'	
TW	19					2.0							35 6 7			
TW	20					1.7							8 9			pp. 4+
TW	21					1.9							40 1		Trace lignite below 41'	
TW	22					2.0							2 3		Grading dark grey below 42'; 1/2" silt seam at 42.3'	
TW	23					1.1							4 45 6		Silty CLAY; dark grey; hard; high plasticity; dry; some iron staining	pp. 4+
TW	24					0							7			TW 24 no sample cored w/2' core barrel
			48'										8			
3"	1	2	1.3	0.3	65	17							9		SANDSTONE; argillaceous; grey; fine grained; slightly weathered; w/trace lignite; horizontal joints	
			50'										50 1 2 3 4 55 6 7 8 9 60			Bottom of boring 49.8'. Groundwater level unknown. Reamed 0-3' w/6 7/8" bit Reamed 3-50' w/4 1/2" bit. Installed 2-20' sections of 2" PVC pipe; 1-7.2' section of 2" PVC and 1-5' screen.

P I S T - D

BLACK & VEATCH
CONSULTING ENGINEERS

PIEZOMETER INSTALLATION LOG

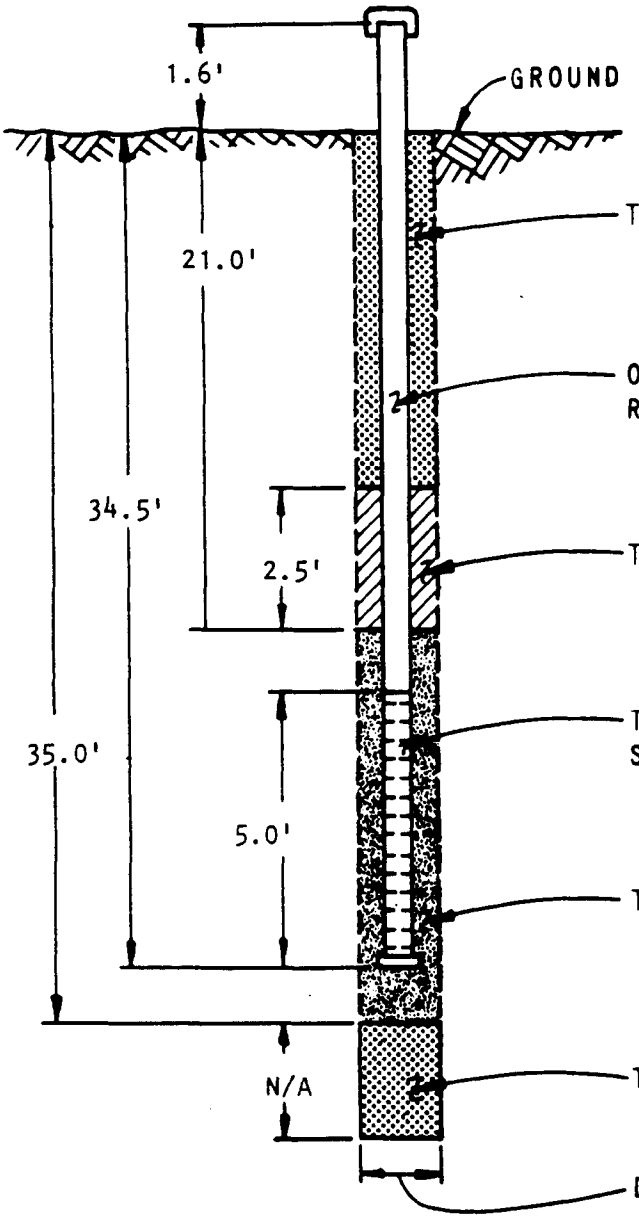
PIEZOMETER NO. B-15

CLIENT	PROJECT	PROJECT NO
Texas Municipal Power Agency	Gibbons Creek	14578

PROJECT LOCATION	COORDINATES	GROUND ELEVATION	DATE
Carlos, Texas	N378200 E3342496	261.5'	2-23-88

STRATUM MONITORED	INSPECTOR
Sandstone	K. M. Blevins-McCosh

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh



TYPE OF SEAL	Volclay grout and Initiator / Cement-Bentonite
O.D. & TYPE OF RISER PIPE	2" PVC-glued joints / Schedule 40
TYPE OF SEAL	Bentonite / 1/2" Tablets
TYPE AND SIZE OF SCREEN OR OPENINGS	.01" Slots
TYPE OF FILTER	Pea gravel
TYPE OF SEAL	N/A
DIAMETER OF BOREHOLE	4 1/2"

METHOD OF INSTALLATION: Boring drilled to completion; set riser pipe and screen; placed filter and seal; grouted to surface; poured surface pad.

REMARKS: Flushed cuttings from hole; hole remained fluid filled during installation. Developed well on 2-27-88 by flushing well with clean water for 6 min. blew out water from well with air compressor water level recorded at 23'-10" from TOC

P-ST-021B

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-15
SHEET 1 of 2

CLIENT	PROJECT	PROJECT NO.
Texas Municipal Power Agency	Gibbons Creek SES	14578

PROJECT LOCATION	COORDINATES	ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N378200 E3342496	261.5'	35.0'	2-23-88

SURFACE CONDITIONS	INSPECTOR	DATE FINISH
Open pasture	K. M. Blevins-McCosh	2-23-88

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh

SAMPLING							CORING							DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD				
														1		Undifferentiated overburden	Advanced hole using 4 1/2" rotary wash
TW	1					1.2								2			
														3		Silty CLAY; brown; medium dense; stiff to hard; low plasticity; moist; some sand Grading to more silt at 3'-3.5'	
TW	2					0.8								4			
														5			
TW	3					0.5								6		Sandy CLAY; tan to brown; hard; low plasticity; moist; trace silt	
														7			pp. 4+
TW	4					0.8								8			
														9			Tried to push TW
														10		Clayey SAND; tan to brown; poorly graded; fine grained; some silt; iron staining	Tried SPT - cored at 10' so reamed w/rotary wash
3"	1	2	10' 0	0	0	0								1			looked at cuttings
																SANDSTONE; argillaceous; yellowish-tan; fine to medium grained; iron staining; highly weathered	
3"	2	2	12' 1.3	0	65	0								2			Sample recovery below 12' in 1-3" sections
														3			
3"	3	2	14' 1.2	0	60	0								4		Argillaceous grading out below 14'	
														15			
3"	4	2	16' 0	0	0	0								6			
														7		Grading grey below 16'	
3"	5	2	18' 0	0	0	0								8			Missed sample at 18-20' rotary washed. Continued drilling with 3" diameter 5' core barrel below 20'.
														9			
			20'											20		Iron staining on joints below 20'	
														1			
																Lignite partings starting at 21.7'	
3"	6	5	4.5	0.33	90	7								2			
														3		Grading greenish-grey below 23' and slightly argillaceous	
														4			
			25'											25			
														6			
3"	7	5	4	0.83	80	12								7			
														8		Lignite partings grading out below 27.5'	
														9			
			30'											30			

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-15
SHEET 2 of 2

CLIENT			PROJECT		PROJECT NO.
Texas Municipal Power Agency			Gibbons Creek SES		14578
PROJECT LOCATION	COORDINATES		ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N378200 E3342496		261.5'	35.0'	2-23-88
SURFACE CONDITIONS			INSPECTOR		DATE FINISH
Open pasture			K. M. Blevins-McCosh		2-23-88
			CHECKED BY	APPROVED BY	
			M. C. Schluter	L. J. Almaleh	

SAMPLING							CORING								
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD	DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
										30'				1		Horizontal fractures spaced generally from 1-3" apart; numerous lignite partings below 30'	
							3"	8	5	2.2	0	44	0	2			
														3			
														4			
										35'				35			Bottom of boring 35'. Ground water level unknown. Reamed hole using 4 1/2" bit. Flush cuttings out of hole installed 1-20' section and 1-11' section of 2" PVC and 5' section of screen.
														6			
														7			
														8			
														9			
														40			
														1			
														2			
														3			
														4			
														45			
														6			
														7			
														8			
														9			
														50			
														1			
														2			
														3			
														4			
														55			
														6			
														7			
														8			
														9			
														60			

P I S T O D

BLACK & VEATCH
CONSULTING ENGINEERS

PIEZOMETER INSTALLATION LOG

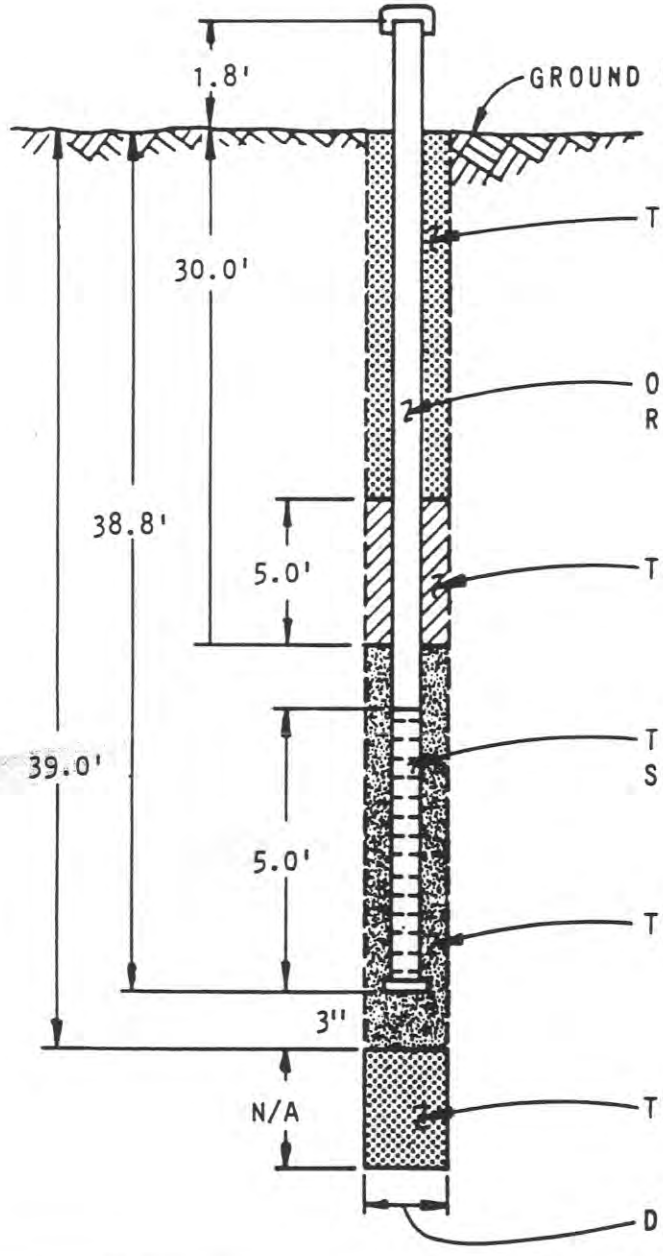
PIEZOMETER NO. B-16

CLIENT	PROJECT	PROJECT NO
Texas Municipal Power Agency	Gibbons Creek	14578

PROJECT LOCATION	COORDINATES	GROUND ELEVATION	DATE
Carlos, Texas	N379581 E3339416	261.7'	2-25-88

STRATUM MONITORED	INSPECTOR
Sandstone	K. M. Blevins-McCosh

CHECKED BY	APPROVED BY
M. C. Schluter	I. J. Almaleh



TYPE OF SEAL	Volclay grout Cement/Bentonite
O.D. & TYPE OF RISER PIPE	4" PVC flush jointed Schedule 40
TYPE OF SEAL	Bentonite Pellets 1/2"
TYPE AND SIZE OF SCREEN OR OPENINGS	.01" Slots
TYPE OF FILTER	Pea Gravel
TYPE OF SEAL	N/A
DIAMETER OF BOREHOLE	7"

METHOD OF INSTALLATION: Boring drilled to completion; set riser pipe and screen; placed filter and seal; grouted to surface; poured surface pad

REMARKS: Cuttings washed from hole; piezometer installed in fluid-filled hole; well developed on 2-27-88 by flushing hole w/clean water for 8 min. and pumping until dry. Water level recorded at 38.2' from TOC.

P-ST-02

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-16
SHEET 1 of 2

CLIENT	PROJECT	PROJECT NO.
Texas Municipal Power Agency	Gibbons Creek SES	14578

PROJECT LOCATION	COORDINATES	ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N379581 E3339416	261.7'	39.0'	2-25-88

SURFACE CONDITIONS	INSPECTOR	DATE FINISH
Clearing in woods	K. M. Blevins-McCosh	2-25-88

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh

SAMPLING							CORING							DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD				
TW	1					0.7								1		Silty CLAY; dark brown; medium dense; high plasticity; moist; organics; roots (Top soil)	Boring advanced using 6 7/8" rotary wash
TW	2					1.5								2		CLAY; dark brown; stiff; high plasticity; moist; some silt	
														3			pp. 1.25
TW	3					1.1								4		Trace gravel and iron staining below 4'	pp. 1.5
TW	4					1.8								5			pp. 2.0
TW	5					1.7								6		Silty CLAY; brown; stiff; high plasticity; moist; iron staining; jointed Gypsum seam at 7.5' and 9'; slickensided below 7'	
TW	6					1.8								7			
TW	7					1.5								8			
TW	8					1.7								9			
TW	9					1.7								10		Horizontal and 45° to vertical joints below 10' filled w/gypsum crystals and iron staining	pp. 2.5
TW	10					1.7								1			pp. 2.75
TW	11					1.6								2			
TW	12					1.3								3		Gypsum filled vertical joint at 14'- joint is 4" long; banded brown and dark brown below 14'. Gypsum filled joint spacing generally 8"-1.5'	
TW	13					1.3								4			
TW	14					1.2								15			pp. 2.75 pp. 3.5
	15					0.4								6			
														7			pp. 3.0
														8		CLAY; olive grey to dark grey; hard; high plasticity; moist; with silt seams on joints below 20'; trace iron staining; trace sand in joints; occasional silty sand pockets below 16'; thinly bedded	
														9			
														20			pp. 4+
														1			
														2			pp. 4+
														3			
														4			pp. 4+
														25			pp. 4+
														6			
														7			
														8			
														9		Lignitic below 29' - lignite seams up to 1"	
														30			

PISTON

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-16
SHEET 2 of 2

CLIENT	PROJECT	PROJECT NO.
Texas Municipal Power Agency	Gibbons Creek SES	14578

PROJECT LOCATION	COORDINATES	ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N379581 E3339416	261.7'	39.0'	2-25-88

SURFACE CONDITIONS	INSPECTOR	DATE FINISH
Clearing in woods	K. M. Blevins-McCosh	2-25-88

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh

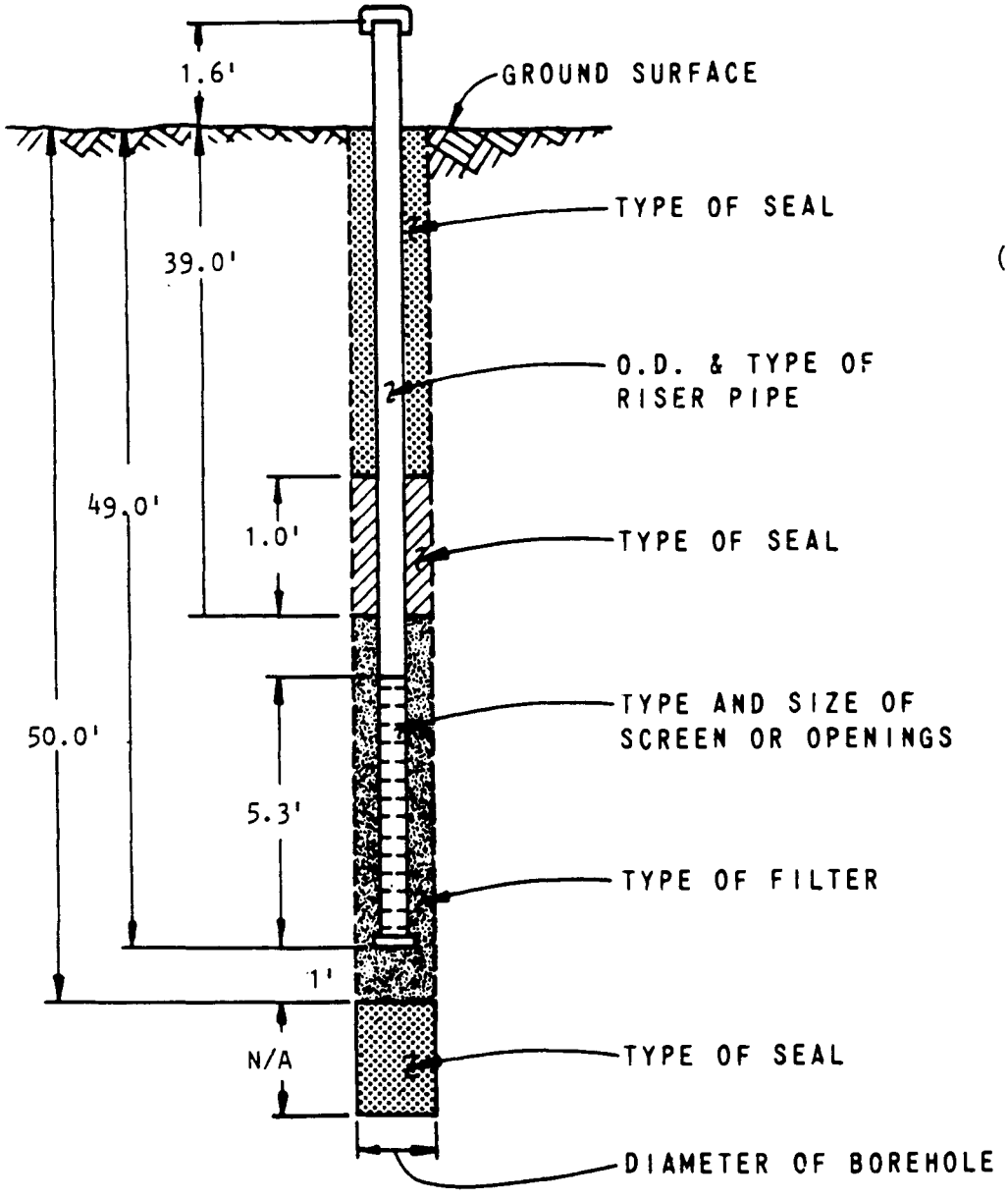
SAMPLING							CORING							DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD				
3"	1	1	0.2	0	20	0								1		SANDSTONE; argillaceous; greenish-grey; fine grained; weathered	
			31'											2			
TW	16					0.5								3		Clayey SAND; greenish-grey; partially cemented; fine grained; poorly graded; some silt (maybe extremely weathered sandstone)	
														4			
			34'											35			
3"	2	5	4	1.3	80	26								6		SANDSTONE; argillaceous; greenish-grey; fine grained; weathered; w/lignite seams; horizontal and vertical joints - weathering on joints	
														7			
														8			
			39'											9			Bottom of boring at 39'. Groundwater level unknown. Reamed hole w/6 7/8" bit. Installed 3-10' sections 4" PVC and 1-5.8' section 4" PVC; set 1-5' section .01" slot screen.
														40			
														1			
														2			
														3			
														4			
														45			
														6			
														7			
														8			
														9			
														50			
														1			
														2			
														3			
														4			
														55			
														6			
														7			
														8			
														9			
														60			

BLACK & VEATCH
CONSULTING ENGINEERS

PIEZOMETER INSTALLATION LOG

PIEZOMETER NO. B-17

CLIENT: Texas Municipal Power Agency	PROJECT: Gibbons Creek		PROJECT NO: 14578
PROJECT LOCATION: Carlos, Texas	COORDINATES: N381087 E3340991	GROUND ELEVATION: 292.3'	DATE: 2-17-88
STRATUM MONITORED: Clay		INSPECTOR: K. M. Blevins-McCosh	
CHECKED BY: M. C. Schluter	APPROVED BY: I. J. Almaleh		



METHOD OF INSTALLATION: Boring drilled to completion' set riser pipe and screen; placed filter and seal; grouted to within 5' of ground surface filled remaining 5' with dry grout and cuttings

REMARKS: Developed well on 2-27-88 by flushing w/clean water for 7 min.; pumped well dry; water level recorded at 48.5' from TOC.

P-ST-021B

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-17
SHEET 1 of 2

CLIENT	PROJECT	PROJECT NO.
Texas Municipal Power Agency	Gibbons Creek SES	14578

PROJECT LOCATION	COORDINATES	ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N381083 E3340991	292.3'	50.0'	2-17-88

SURFACE CONDITIONS	INSPECTOR	DATE FINISH
Clearing in pasture	K. M. Blevins-McCosh	2-17-88

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh

SAMPLING							CORING								
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD	DEPTH IN FEET	CLASSIFICATION OF MATERIAL	REMARKS
														1	10" Undifferentiated overburden	Advanced hole by rotary wash
TW	1					1.5								2	Silty CLAY; brown; stiff; med. plasticity; very moist; w/some roots	pp. 1.0
TW	2					1.2								3	Roots grade out below 3'	
														4	Grading grey below 2.5 with trace sand	pp. 4+
TW	3					1.1								5	1" sand layer at 4.25'	pp. 4+
														6		
TW	4					0.9								7	Clayey SILT; brown to tan; hard; poorly graded; moist; with sand; trace lignite below 11'	
TW	5					1.2								8		
														9		
TW	6					0.9								10		
														1		
TW	7					0.7								2	CLAY; tan; hard; high plasticity; moist with cemented sand stringers; platy in areas with iron staining at plate faces	pp. 4+
														3		
TW	8					1.3								4		
														15	Grading silty with 2" sandy silt seam at approximately 15.7'	
TW	9					1.5								6	Clayey SILT; tan to buff; hard; low plasticity; moist; with some sand and iron staining on plates	
														7		
TW	10					0.9								8	Sandy SILT; tan to buff; poorly graded; moist with some clay; trace iron staining	
														9		
TW	11					0.8								20	Silty CLAY; brown/tan mottled; hard; high plasticity; moist; with trace sand and iron staining; platy	
														1		
TW	12					1.2								2	3" sandy silt layer at 22.5'; grading brown below 23	
														3		
TW	13					1.8								4	CLAY; brown; hard; high plasticity; moist; iron staining on plates and joints; gypsum crystals at 25.8'	
														25		
TW	14					1.2								6		pp. 4+
														7	Clayey SILT; brown; high plasticity; moist; iron staining	
TW	15					1.4								8	CLAY; greenish-grey; high plasticity; hard; moist; with trace silt; trace iron	
														9		
														30		

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-17
SHEET 2 of 2

CLIENT: Texas Municipal Power Agency		PROJECT: Gibbons Creek SES	PROJECT NO.: 14578
PROJECT LOCATION: Carlos, Texas	COORDINATES: N381083 E3340991	ELEVATION (DATUM): 292.3' / TOTAL DEPTH: 50.0'	DATE START: 2-17-88
SURFACE CONDITIONS: Clearing in pasture		INSPECTOR: K. M. Blevins-McCosh	DATE FINISH: 2-17-88
	CHECKED BY: M. C. Schluter	APPROVED BY: L. J. Almaleh	

SAMPLING: SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORING: CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD	DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
TW	16						TW	16					2.0	1			
														2			
TW	17						TW	17					1.8	3			
														4			
TW	18						TW	18					1.8	35		Grading to trace silt below 35'	
														6			
TW	19						TW	19					1.7	7			
														8		Grading to laminated banded (greenish-grey and grey) below 38' with trace lignite at 39.8';	
TW	20						TW	20					1.9	9			
														40			
TW	21						TW	21					1.9	1			
														2			
TW	22						TW	22					1.8	3			
														4		Banding grading out below 44'	
TW	23						TW	23					2.0	45			
														6			pp. 4+
TW	24						TW	24					1.8	7		Banded below 47'	
														8			
TW	25						TW	25					1.6	9			
														50			Bottom of boring at 50'. Groundwater level unknown. Hole reamed using 6 1/2" diameter auger bit.
														1			
														2			Set 4-10' and 1-4.6' section of 4" diameter schedule 40 threaded flush-jointed PVC pipe, 5' screen.
														3			
														4			
														55			
														6			
														7			
														8			
														9			
														60			

P I S E 3 6 D

BLACK & VEATCH
CONSULTING ENGINEERS

PIEZOMETER INSTALLATION LOG

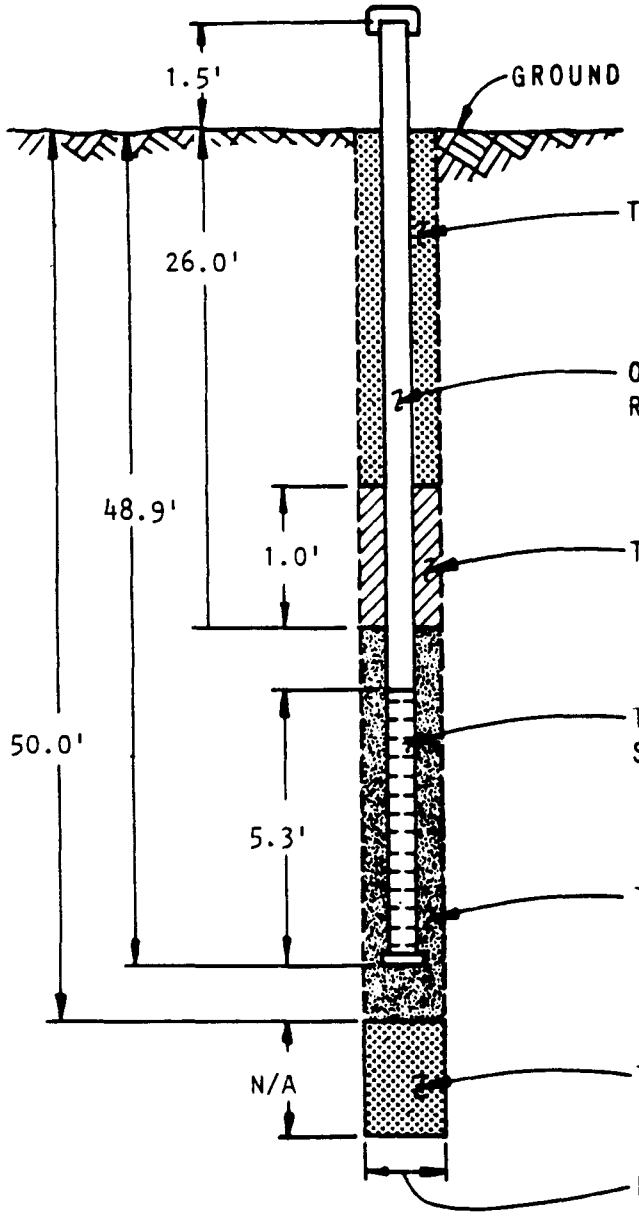
PIEZOMETER NO. B-18

CLIENT	PROJECT	PROJECT NO
Texas Municipal Power Agency	Gibbons Creek	14578

PROJECT LOCATION	COORDINATES	GROUND ELEVATION	DATE
Carlos, Texas	N381539 E3342922	269.1'	2-18-88

STRATUM MONITORED	INSPECTOR
Clay	K. M. Blevins-McCosh

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh



TYPE OF SEAL	Volclay Grout & Initiator (Cement-Bentonite)
O.D. & TYPE OF RISER PIPE	4" PVC flush-jointed Schedule 40
TYPE OF SEAL	Bentonite Pellets
TYPE AND SIZE OF SCREEN OR OPENINGS	.01" Slots
TYPE OF FILTER	Pea Gravel
TYPE OF SEAL	N/A
DIAMETER OF BOREHOLE	7"

METHOD OF INSTALLATION: Boring drilled to completion; set riser pipe and screen; placed filter and seal; grouted to surface; poured surface pad.

REMARKS: Riser pipe started to rise so had to fill with water during installations; well developed on 2-27-88 by flushing w/clean water for 7 min., and then pumping well dry. Water level 50' from TOC.

P-ST-021B

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-18
SHEET 1 of 2

CLIENT	PROJECT	PROJECT NO.
Texas Municipal Power Agency	Gibbons Creek SES	14578

PROJECT LOCATION	COORDINATES	ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N381539 E3342922	269.1	50.0'	2-17-88

SURFACE CONDITIONS	INSPECTOR	DATE FINISH
Clearing in pasture	K. M. Blevins-McCosh	2-17-88

CHECKED BY	APPROVED BY
M. C. Schluter	L. J. Almaleh

SAMPLING							CORING								
SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD	DEPTH IN FEET	GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
														1		Undifferentiated overburden	Boring advanced using 4 1/2" rotary wash
														2			
TW	1					0.6								3		Sandy SILT; tan; poorly graded; moist; with cemented sand stringers; some clay; iron staining	
														4			
TW	2					1.5								5		Clayey SILT; reddish-brown; hard; high plasticity; moist; trace sand; iron staining; grading some sand below 7'	
														6			
TW	3					1.3								7			pp. 4+
														8			
TW	4					1.7								9		Sandy SILT; reddish-brown; poorly graded; moist; with clay and iron staining; grading to silty clay; interbedding with lignitic clay below 10'; few gypsum crystals	
														10			
TW	5					1.3								1			
														2			
TW	6					1.5								3		Silty CLAY; dark brown to black; hard; highly plastic; moist; lignitic; iron staining; with trace sand below 16'	
														4			pp. 4+
TW	7					0.9								15			
														6			
TW	8					0.9								7			pp. 4+
														8		Silty SAND; tan; poorly graded; moist; trace clay; iron staining	
TW	9					0.7								9			pp. 4+
														20		Clayey SILT; greenish-grey; highly plastic; moist; with trace thin silty sand laminae; trace iron staining	
TW	10					1.4								1			
														2			
TW	11					1.8								3			
														4			
TW	12					0.8								25		Sandy SILT; greenish-grey; poorly graded; moist; with trace to some clay	
														6			
TW	13					1.2								7		Silty CLAY; greenish-grey; high plasticity; moist; with some sandy silt layers	
														8			
TW	14					1.3								9			
														30			

BLACK & VEATCH
ENGINEERS-ARCHITECTS

LOG OF BORING

BORING NO. B-18
SHEET 2 of 2

CLIENT		PROJECT		PROJECT NO.
Texas Municipal Power Agency		Gibbons Creek SES		14578
PROJECT LOCATION	COORDINATES	ELEVATION (DATUM)	TOTAL DEPTH	DATE START
Carlos, Texas	N381539 E3342922	269.1	50.0'	2-17-88
SURFACE CONDITIONS		INSPECTOR		DATE FINISH
Clearing in pasture		K. M. Blevins-McCosh		2-17-88
CHECKED BY		APPROVED BY		
M. C. Schluter		L. J. Almaleh		

SAMPLING SAMP TYPE	SAMP NO.	SET 6"	2ND 6"	3RD 6"	N VAL	SAMP RECV	CORING CORE SIZE	RUN NO.	RUN LENG	RUN RECV	RQD RECV	% RECV	RQD	DEPTH IN FEET	SAMPLE TYPE / GRAPHICS LOG	CLASSIFICATION OF MATERIAL	REMARKS
TW	15												1.4	1		2" sandy silt seam at 32.5'; grading to low plasticity; sandy silt filled fractures spacing about 4" in sample	
TW	16												1.4	2			
TW	17												1.5	3			
TW	18												0.9	4		Grading to interbedded green and greenish grey silty clay below 34'; trace cemented sand	
TW	19												2.0	35			
TW	20												2.1	6			
TW	21												2.0	7		2" sandy silt seam at 37.8' Grading greenish-grey below 38'	
TW	22												1.7	8			
TW	23												1.9	9			
TW	24												1.6	40		Grading to high plasticity below 40'; sandy silt seam grading out; becoming greenish grey and grey banded clay	
														1			
														2			
														3		Slickensides at 44.5'	
														4			
														45			
														6			
														7			
														8			
														9			
														50			Bottom of boring at 50'. Groundwater level unknown. Reamed hole twice using 6 3/4" auger bit. Installed 4-10' and 1-5.5' section of 4" PVC, 1-5' section of screen.
														1			
														2			
														3			
														4			
														55			
														6			
														7			
														8			
														9			
														60			

APPENDIX B

Field Data Forms

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SSP MW-4
Sample ID: SSPMW-4 Duplicate ID: _____
Sample Depth: 49.5
Project and Phase No.: 6706150060
Project Name: TMPA
Date: 6/21/2016
Sampled By: DBH / SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 24.09
Depth to Water after Sampling: 46.83
Total Depth to Well: 51.55
Well Diameter: 2 inch
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: 9 gallon (2x)

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
830	START	TIME								
832		1000	2	24.48	6.36	5.60	0.55	61	15.5	clear
835	37.50	~~200~~	2.5	24.62	6.38	5.59	0.53	63	6.8	clear; slowed rate
840			3.5	26.09	6.38	5.60	1.17	63	21.6	
845	39.50	1000	4.5	25.70	6.37	5.59	1.20	61	26.6	
850	41.79	1000	5.25	25.67	6.39	5.55	0.81	60	0.0	
855		750	6	26.25	6.38	5.55	0.92	63	0.0	
900	44.44	~~500~~ 375	6.5	25.83	6.37	5.55	0.66	62	0.0	
905	46.50	375	6.75	26.09	6.38	5.55	0.62	68	0.0	
910	46.83	375	7.0	26.73	6.38	5.53	0.63	67	0.0	Sampled
Collected Samples at 9:10										
			9 gallons Total Removed							
1/2 gallon		Nitric								
16 FL oz		No preservative								
1 Liter		Nitric								

NOTES: 51.55 - 24.11 = 27.44 x 0.17 = 4.67 x 3 = 13.99
5 gallon
4 "
1 "
9 total

Recharged Slowly

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SSP MW-3

Sample ID: SSP MW3 Duplicate ID: _____

Sample Depth: 46.17

Project and Phase No.: 6706150060

Project Name: TMPA

Date: 6/21/16

Sampled By: DBH/SM

Method of Purging: Submersible

Method of Sampling: Low flow

Initial Depth to Water: 26.55

Depth to Water after Sampling: _____

Total Depth to Well: 48.17

Well Diameter: 2 inch

1 Casing/Borehole Volume: _____ (Circle one)

4 Casing/Borehole Volumes: _____ (Circle one)

Total Casing/Borehole Volumes Removed: _____

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(mS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
1000	Started to Pump well									
1005	33.02	1000	2.5	24.52	4.64	8.05	0.0	229	86	cloudy,
1010	34.26	400	5.0	24.63	4.56	8.01	0.0	236	210	clearing
1015	35.20	400	7.0	24.59	4.51	8.00	0.0	240	80.6	
1020	34.88	500	9.0	24.66	4.39	8.04	0.0	247	134	
1025	34.65	650	10	24.96	4.44	7.94	0.0	251	84.5	
1030	35.62	650	12	24.56	4.44	8.30	0.0	245	48.3	
1035	35.64	500	13	24.67	4.40	8.06	0.0	249	24.8	
1038	Collected SAMPLES									

5 gal

5 gal

NOTES: 48.17 - 26.55 = 21.62 x 0.17 = 3.68 x 3 = 11.03

5 gal - After Sampling, surged and pumped an additional 5 gallons

+5

+4

14 Total

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SSP MW-2

Sample ID: SSP MW-2 Duplicate ID: _____

Sample Depth: 44.88

Project and Phase No.: 67261500 60

Project Name: TMPA

Date: 6/2/16

Sampled By: DBH/SM

Method of Purging: Submersible

Method of Sampling: Low flow

Initial Depth to Water: [redacted]

Depth to Water after Sampling: _____

Total Depth to Well: 46.88

Well Diameter: 2 inch

1 Casing/Borehole Volume: _____ (Circle one)

4 Casing/Borehole Volumes: _____ (Circle one)

Total Casing/Borehole Volumes Removed: _____

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(mS/cm)~~ MS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity NTU	Remarks (recharge, color, and sediment)
1115	Began Pumping well									
1120	31.60	600		24.80	5.54	8.63	0.0	-54	341	
1125	34.78	600	2.5	25.26	5.53	8.50	0.0	-42	185	
1130	37.32	350	3	25.68	5.55	8.30	0.0	-25	122	
1135	[redacted]	300	4	25.65	5.66	7.75	0.0	6	1.17	
1140		100	5	26.13	5.65	7.72	0.0	4		water below pump
1150				28.95	5.67	8.01	0.0	4	0.0	
[redacted]1310	38.91			40.43	5.86	0.007	5.19	-50	147	
1320	41.32	150		33.14	5.68	8.45	0.00	41	8.15	
	→ Sampled at 1320									
	Final reading below the pump									

NOTES: 46.88 - 12.38 = 34.50 x 0.17 = 5.87 x 3 = 17.60

5 gal

+1

6 gal

Slow Recharge Rate

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SSPAP MW 1

Sample ID: SSPAPMW1 Duplicate ID: _____

Sample Depth: _____

Project and Phase No.: TMPA 6706150060

Project Name: TMPA

Date: 6/21/16

Sampled By: VBB/SM

Method of Purging: Submersible

Method of Sampling: Low flow

Initial Depth to Water: 6.68

Depth to Water after Sampling: 32.51

Total Depth to Well: 43.16

Well Diameter: 2 inch

1 Casing/Borehole Volume: _____ (Circle one)

4 Casing/Borehole Volumes: _____ (Circle one)

Total Casing/Borehole Volumes Removed: _____

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
1530	Began Pumping Well									
1530	6.68			24.08	6.11	7.42	0.0	-20	0.0	
1535	29.61		4	24.06	6.11	7.46	0.0	-22	0.0	5 gal
1540	32.65	300	6	24.77	6.06	7.54	0.0	-20	370.0	
1545	33.63	250	7	25.88	6.07	7.66	0.0	-19	321	
1550	33.59	250	7.5	26.16	6.04	7.70	0.0	-19	279	
1555	31.95	250	9	26.08	5.97	7.88	0.0	-11	199	
1600	31.61		9.5	26.03	5.94	8.01	0.0	-9	168	
1605	31.82		10	25.76	5.91	8.19	0.0	-5	106	5 gal
1610	32.12		10.5	25.73	5.92	8.29	0.0	-5	93.9	
1615	32.19		11.5	25.95	5.90	8.30	0.0	-5	102	
1620	32.21	250	12	26.11	5.89	8.34	0.0	-5	93.8	
1620	→	Began Sampling								

NOTES: 43.16 − 6.68 = 36.48 × 0.17 = 6.20 × 3 = 18.6

Good recharge

5
+5
×2
10 gal

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: AP MW 4
Sample ID: APMW4 Duplicate ID:
Sample Depth: 51.00
Project and Phase No.: TMPA 670615006Q
Project Name: TMPA Gibbons Creek Mine
Date: 6-22-16
Sampled By: DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 12.86
Depth to Water after Sampling: ≈ 16.61
Total Depth to Well: 52.79
Well Diameter:
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
	Began Pumping				5.88	mS/cm				
0952	13.18	500		32.95	[illegible]	4.25	1.88	-20	24.6	Cloudy
0957	15.58			23.85	5.88	4.90	0.0	-27	544	
1002	16.11	400	2.5	23.78	5.89	4.89	0.0	-39	60.1	
1007	16.17		4	23.47	5.87	4.91	0.0	-39	26.1	Clearing
1012	17.30	400	5.5	23.54	5.85	4.92	0.0	-35	2.3	Very clear
1017	16.37		6.5	23.49	5.83	4.93	0.0	-35	0.0	
1022	16.41		7.5	23.55	5.82	4.94	0.0	-28	0.0	
1027	16.49	350	9	23.66	5.81	4.91	0.0	-25	0.0	
1032	16.54	250	10	23.56	5.79	4.93	0.0	-22	0.0	
	Began sampling 10:32									

NOTES: 52.79 - 12.86 = 39.93 x 0.17 = 6.79 x 3 = 20.36

5
+5
+5 Purged after sampling

Recharges quickly

+5 Purged after Sampling

20 gal total Purged

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: AP MW-5
Sample ID: APMW5 Duplicate ID: _____
Sample Depth: 41.00
Project and Phase No.: 67961500 60
Project Name: TMPA
Date: 6-22-16
Sampled By: DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 10.95
Depth to Water after Sampling: 14.54
Total Depth to Well: 43.14
Well Diameter: 2 inch
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
~~1130~~										
11:25	Begin Pumping									
11:30	15.31			24.25	3.69	5.30	0.0	341	323	
11:35	14.64	250		24.34	3.63	5.64	0.0	345	6.2	Clearing
1140	13.11	250	4.5	25.89	3.55	5.62	0.0	347	6.1	
1145	14.80	250	5.0	24.32	3.56	5.74	0.0	335	0.0	Very clear
1150	14.82	350	6.5	24.43	3.61	5.69	0.0	318	0.0	
1155	13.12	250	8	24.62	3.63	5.70	0.0	315	0.0	
1200	13.68	350	8.5	24.99	3.55	5.64	0.0	317	0.0	
1205	13.48	350	9.5	24.73	3.58	5.47	0.0	312	0.0	
1210			~~10.0~~	~~26.05~~						
└→ Collected Sample										
10 gal before sampling										

5 gal

NOTES: 43.14 - 10.95 = 32.19 x 0.17 = 5.47 x 3 = 16.42

5 +5 purged after sampling

Good recharge

15 gal total

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: AP MW-1D
Sample ID: AP MW 1D Duplicate ID: Dup-1
Sample Depth: 41.00
Project and Phase No.: 6706150060
Project Name: TMPA
Date: 6-22-16
Sampled By: DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 13.88
Depth to Water after Sampling: 14.34
Total Depth to Well: 42.98
Well Diameter: 2
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(uS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
1408	Started	Pumping	well							
1418	13.88			26.92	5.50	2.10	0.0	87	686	
1423	14.81	350	2.25	25.77	5.43	2.14	0.0	96	117	Pretty clear
1428	14.49	350	3	26.14	5.38	2.13	0.0	103	56.1	
1433	14.31	350	4	26.50	5.39	2.14	0.0	107	40.2	
1438	14.22	350	4.5	26.61	5.40	2.14	0.0	108	3.3	
1440	Begin Sampling			well						

NOTES: 42.98 - 13.88 = 29.1 x 0.17 = 4.95 x 3 = 14.84
5 gal
+ 10 gal
15

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: APMW-3
Sample ID: APMW3 Duplicate ID:
Sample Depth: 41.39
Project and Phase No.: 6706160050
Project Name: TMPA Gibbons Creek Mine
Date: 6-22-16
Sampled By: DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 10.34
Depth to Water after Sampling: 12.43
Total Depth to Well: 43.39
Well Diameter: 2 in
1 Casing/Borehole Volume:
(Circle one)
4 Casing/Borehole Volumes:
(Circle one)
Total Casing/Borehole Volumes Removed:

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm) mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
1530	Began		Pumping →		Collected		EQ Blank - 1	prior to pumping		
1535	10.34	350		24.96	5.37	1.84	0.0	60	0.0	very clear
1540	12.38		4	24.78	5.47	1.84	0.0	66	0.0	
1545	12.27		6	25.07	5.49	1.82	0.0	71	0.0	
1550	12.16	350	7	24.91	5.49	1.83	0.0	79	0.0	
1555	12.01		8.5	25.05	5.45	1.82	0.0	70	0.0	
1600	11.92	350	10	25.18	5.38	1.82	0.0	71	0.0	
Collected	Samples	at 1602								

NOTES: 43.39 - 10.34 = 33.05 × 0.17 = 5.62 × 3 = 16.86

5 +5 very Good Recharge

+5 purged after samples were taken

15 gal total

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SFL-MW3
Sample ID: SA-MW3 Duplicate ID: Dup-2
Sample Depth: ~26.00
Project and Phase No.:
Project Name: TMPA Gibbons Creek
Date: 6-23-16
Sampled By: DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 17.55
Depth to Water after Sampling: 19.36
Total Depth to Well: 28.17
Well Diameter: 2 in
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm) mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
1049	Began Pumping			(well)						
1054	18.53	390	1	24.99	3.87	7.49	0.0	382	759	Dirty
1059	18.77	300	1.75	24.37	3.83	7.49	0.0	364	102	clearing up
1104	18.44	390	4	24.52	3.84	7.51	0.0	352	5.3	
1109	18.84	300	5.5	24.77	3.76	7.56	0.0	342	0.0	
[illegible]										
1110	Collected Sample									

NOTES: 28.17 − 17.55 = 10.62 × 0.17 = 1.81 × 3 = 5.43
5.5
Good Recharge
+5 After Sampling
+1 After
11.5 Total

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SFL MW4

Sample ID: SFL MW4 Duplicate ID: _____

Sample Depth: ~40.72

Project and Phase No.: 6706 150060

Project Name: TMPA Gilchrist Creek

Date: 6-23-16

Sampled By: DBH/SM

Method of Purging: Submersible

Method of Sampling: Low flow

Initial Depth to Water: 14.79

Depth to Water after Sampling: 19.41

Total Depth to Well: 42.72

Well Diameter: 2 in.

1 Casing/Borehole Volume: _____ (Circle one)

4 Casing/Borehole Volumes: _____ (Circle one)

Total Casing/Borehole Volumes Removed: _____

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(uS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
1158	0 Began Pumping well					~				
1203	18.13	350		26.19	6.41	7.88	0.0	-52	478	
1208	18.03	350	1.75	26.65	6.39	7.88	0.0	-56	134	Clearing
1213	17.99	350	2.5	26.72	6.39	7.87	0.0	-57	37.4	
1218	18.13	350	3.5	26.41	6.39	7.85	0.0	-56	4.0	
1223	18.41	350	4.5	26.51	6.39	7.82	0.0	-56	0.0	
1228	18.63		5.5	26.25	6.38	7.82	0.0	-55	0.0	
1229	Began Sampling									

NOTES: 42.72 - 14.79 = 27.93 x 0.17 = 4.75 x 3 = 14.24

5.5

+5 After Sampling

10.5 Total

Good Recharge

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SFL-MW-2
Sample ID: SFLMW2 Duplicate ID: _____
Sample Depth: 21.64
Project and Phase No.: 6706150060
Project Name: IMPA Gibbons Creek
Date: 6-23-16
Sampled By: DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 11.13
Depth to Water after Sampling: 16.40
Total Depth to Well: 23.64
Well Diameter: 2 inch
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(uS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
~~1330~~										
1333	Began Pumping Well									
1338	13.22	300	0.5	26.25	6.37	11.8	0.0	111	151	Clearing
1343	12.81	300	1	27.00	6.36	11.9	0.0	110	110	
1348	13.22	300	1.5	25.72	6.38	11.9	0.0	110	27.7	Clear
1353	13.92	300	2.25	25.84	6.40	12.0	0.0	109	0.0	Clear
1358	15.41	300	3.75	24.35	6.38	12.0	0.0	118	0.0	
1403	15.89	300	5	24.70	6.34	12.0	0.0	128	0.0	
1408	16.40	300	6	24.40	6.32	12.0	0.0	129	0.0	
~~1410~~										
1412	Began Sampling									

NOTES: 23.64 − 11.13 = 12.51 × 0.17 = 2.13 × 3 = 6.38 gal

~~5~~
+1.5
+~~3.5~~ After Sampling

10 Total

Good Recharge

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SFL MW5
Sample ID: SFLMW5 Duplicate ID: _____
Sample Depth: ~22.25
Project and Phase No.: 6206150060
Project Name: TMP A Gibbons Creek
Date: 6-23-16
Sampled By: ~~[redacted]~~ DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 15.83
Depth to Water after Sampling: 21.13
Total Depth to Well: 24.25
Well Diameter: 2 in
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
~~[redacted]~~										
1449	Begin		Pumping ~~[redacted]~~ well							
1454	19.98	400	2.5	24.53	4.99	12.2	0.0	287	204	
1459	19.56	250	3	26.33	4.98	12.2	0.0	272	78.6	
1504	19.71	250	3.5	26.46	4.96	12.2	0.0	266	50.5	
1509	20.49	250	~~4.0~~ 4.75	24.41	5.05	12.2	0.0	263	0.0	
~~[redacted]~~										
1511	Collected	Sample								

NOTES: 24.25 - 15.83 = 8.42 x 0.17 = 1.43 x 3 = 4.29

4.75
+ 1 after Sampling

Decent Recharge
Good for Low Flow

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec

Well ID: SFL MW6
Sample ID: SFLMW6 Duplicate ID:
Sample Depth: ~21.11
Project and Phase No.: 6796150060
Project Name: TMPA Gibbons Creek Mine
Date: 6-23-16
Sampled By: DBH/SM
Method of Purging: Submersible
Method of Sampling: Low flow

Initial Depth to Water: 17.41
Depth to Water after Sampling: 21.79
Total Depth to Well: 23.11
Well Diameter: 2 in
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Depth to Water	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(uS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity	Remarks (recharge, color, and sediment)
	18.63									
1541	Began Pumping Well									
1546	19.65	250	1	24.95	4.84	12.7	0.0	214	162	
1551	20.10	250	2.25	25.99	4.63	12.8	0.0	161	560	
1556	20.93	250	3	26.09	4.40	12.9	0.0	254	152	
1558	Collected Samples									

NOTES: 23.11 - 17.41 = 5.70 x 0.17 = 0.969 x 3 = 2.91

Bad Recharge

3 gallons

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP/AP MW-1
Sample ID: _____ Duplicate ID: _____
Sample Depth: 38'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 23, 2016
Sampled By: BJ
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 6.90'
Depth to Water after Sampling: 15.28'
Total Depth to Well: 43.2
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1018	38'	150		25.93	5.82	8.37	Ø.58	-5	NTU: 676 lt. gray/brown; no odor
1023	↓	175		26.09	5.91	8.33	Ø.48	-13	NTU: 651 " "
1028	↓	"	≈ 2.5	26.31	5.93	8.30	Ø.44	-15	NTU: 504 beginning to clear up
—	Samples			Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: 44'
Project and Task No.: 670615006O
Project Name: TMPA Gibbons Creek
Date: August 23, 2016
Sampled By: BJ
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 21.36'
Depth to Water after Sampling: 34.86'
Total Depth to Well: 46.90'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1110	44'	175		25.36	5.44	9.88	Ø.44	47	NTU: 904 lt. tan; slight sulfur odor
1115	↓	↓		25.37	5.40	10.2	Ø.41	45	NTU: 781 " " "
1120				24.99	5.40	10.2	Ø.40	43	NTU: 308 beginning to clear up
1125			≈2.5	25.12	5.39	10.1	Ø.39	42	NTU: 112
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 46'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 23, 2016
Sampled By: BH
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 27.11'
Depth to Water after Sampling: 31.30'
Total Depth to Well: 48.2'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1205	46'	175		24.94	4.35	8.21	0.41	248	NTU: 0.0 Tan; no odor
1210	↓	↓		25.20	4.33	8.15	0.35	261	NTU: 0.0 " "
1215	↓	↓		25.34	4.31	8.17	0.31	272	NTU: 512 Lt. tan; no odor
1220	↓	↓	≈3.5	25.10	4.30	8.18	0.30	276	NTU: 552 " "
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-4
Sample ID: _____ Duplicate ID: DUP-1
Sample Depth: ≈ 49'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 23, 2016
Sampled By: BS
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 24.01'
Depth to Water after Sampling: 40.63'
Total Depth to Well: 51.5'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1312	49'	175		25.50	5.99	5.60	0.47	126	NTU: 163 stained brown; no odor
1317	↓	↓		25.59	6.08	5.59	0.41	115	NTU: 109 lt. tan; no odor
1322				25.81	6.11	5.57	0.36	108	NTU: 56.3 clearing up
1327			≈ 4 gal	25.79	6.12	5.59	0.35	106	NTU: 33.6
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Duplicate samples taken (DUP-1)
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

arrec foster wheeler

Well ID: AP MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: 41'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 24, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 10.28'
Depth to Water after Sampling: 11.21'
Total Depth to Well: 43.4'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (~~µS/cm~~ mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
	41'	≈175							Sulfur smell, Mostly clear
0930		≈175		24.87	5.06	1.77	0.50	78	151 Clearing up
0935		≈175		24.84	5.09	1.79	0.44	76	136 Nearly clear
0940		≈175		24.78	5.10	1.79	0.43	76	46.3 Mostly clear
0945		≈175	≈3.5	24.85	5.09	1.80	0.42	76	22.6 Clear
0946	↓	SAMPLES TAKEN							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: APMW-1D
Sample ID: _____ Duplicate ID: DUP-2
Sample Depth: ≈40.5
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek Mine
Date: 8-24-16
Sampled By: BG
Method of Purging: Submersible Pump
Method of Sampling: Low Flow

Initial Depth to Water: 13.72'
Depth to Water after Sampling: 14.27'
Total Depth to Well: 43'
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1158	≈40.5	175		27.50	5.72	2.02	0.65	10	693 lt. tan; strong egg/sulfur odor
1203	↓	↓		27.72	5.70	2.05	0.49	17	827 " " " "
1208				27.19	5.70	2.08	0.40	27	304 clearing up; " " "
1213	↓	↓	≈4.0	27.25	5.69	2.09	0.38	36	114
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		DUP-2 taken
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: APMW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: 41'
Project and Task No.: 6706150060
Project Name: TMA Gibbons Creek Mine
Date: 8-24-16
Sampled By: BG/SM
Method of Purging: Submersible Pump
Method of Sampling: Low Flow

Initial Depth to Water: 10.61'
Depth to Water after Sampling: 11.62'
Total Depth to Well: 43.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1402	41'	200		24.85	3.77	5.51	1.43	301	518 Light tan, No odor
1407	↓	200		24.64	3.67	5.49	0.52	319	180 "
1412	↓	200	3.5	24.96	3.61	5.54	0.48	330	72.2 clearing up
1412		SAMPLES		Collected					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: 50'
Project and Task No.: 6706150060
Project Name: TMPA Gibbon's Creek Mine
Date: 8-24-16
Sampled By: BG/SM
Method of Purging: Submersible Pump
Method of Sampling: Low Flow

Initial Depth to Water: 12.56'
Depth to Water after Sampling: 14.68'
Total Depth to Well: 52.8'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	Sulfur
1442	50'	200		24.61	5.46	4.81	0.52	54	752 Light Odor
1447		200		25.94	5.49	4.83	0.41	54	684 Dark brown
1452		200		27.14	5.48	4.85	0.41	54	568 "
1457		200	2.5	27.36	5.49	4.86	0.38	54	254 cleaning slightly
1457	Samples Collected								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		EQBK 8-24 collected @ 1518
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-6
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~20
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 25, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 16.99'
Depth to Water after Sampling: 21.23'
Total Depth to Well: 23.1'
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
8:40	~20	200		24.33	4.09	12.9	1.11	351	98.3	H. tan; no odor
8:45	↓	↓		24.46	4.04	13.0	0.88	334	29.3	clearing up
8:50				24.49	3.98	13.0	0.98	335	11.0	clear
8:55				24.54	3.93	12.9	1.27	344	53.3	
9:00				24.70	3.88	12.9	1.40	350	112	
Samples Taken									

* Pump stopped pulling water during sample collection (WL had drawn down). Not enough volume/recharge in well to collect samples. Will return later to make another sample attempt.

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: 1116 - WL = 19.66
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFLMW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: 22'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: 8-25-16
Sampled By: BG/SM
Method of Purging: Submersible Pump
Method of Sampling: Low flow

Initial Depth to Water: 15.96'
Depth to Water after Sampling: 19.18'
Total Depth to Well: 24.3'
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
0942	22'	300		24.82	4.33	11.8	0.78	320	43.6	Mostly clear
0947	↓	150		25.49	4.34	11.8	0.51	301	40.1	No odor
0952	↓	150	3.0	25.80	4.34	11.8	0.50	293	10.6	
0952	SAMPLES Collected									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: 21'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 25, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 10.52'
Depth to Water after Sampling: 14.65'
Total Depth to Well: 23.6'
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1030	21'	150	[illegible]	25.31	5.49	11.0	0.83	230	429 slight tan color no odor
1035	↓	150		26.75	5.57	11.0	0.54	219	419 clearing up slightly
1040		150		26.95	5.59	11.0	0.47	210	418
1045		150	≈3.5	27.06	5.61	11.0	0.44	196	288 clearing up slightly
1045		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: 40'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 25, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 14.30'
Depth to Water after Sampling: 18.38'
Total Depth to Well: 42.7'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1218	40	175		27.11	5.98	7.85	0.53	-12	403 lt. tan; no odor
1223	↓	↓		27.26	5.95	7.91	0.42	-9	230
1228	↓	↓	≈3.0	27.39	5.94	7.90	0.39	-8	111
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~25.5
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: August 25, 2016
Sampled By: BH
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 17.33'
Depth to Water after Sampling: 18.06'
Total Depth to Well: 28.2'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1314	~25.5	200		26.50	3.52	7.29	0.45	348	0.0 orange/brown opaque; no odor
1319	↓	↓		26.46	3.50	7.29	0.37	351	1000 " "
1324	↓	↓	~3.0	26.50	3.50	7.29	0.34	353	430 clearing up
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

arrec foster wheeler

Well ID: SFL MW-6
Sample ID: _____ Duplicate ID: _____
Sample Depth: 22' (initially)
Project and Task No.: 670615006C
Project Name: TMPA Gibbons Creek
Date: 8-25-16
Sampled By: BG
Method of Purging: Submersible Pump
Method of Sampling: Low Flow

Initial Depth to Water: 18.89'
Depth to Water after Sampling: 22.96'
Total Depth to Well: 23.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1512	Low Flow Stabilization Criteria			+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
[redacted]	22.0	175		27.05	3.90	12.8	3.17	346	771 Light tan No odor
1517	22.0	↓		27.42	3.89	12.7	3.92	352	473 " "
1522 [redacted]	22.0	↓	2.5	26.76	3.84	12.8	4.50	366	467 Clearing up
1522	23.0	Samples Taken							

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.:

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes: ~~Pulled~~ Pulled pump 1' off bottom

Final 2 liter jug only 1/3 full

* EQBK 8-25 taken @ 1615

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP/AP MW-1
Sample ID: _____ Duplicate ID: _____
Sample Depth: 38'
Project and Task No.: 67061500060
Project Name: TMPA - Gibbons Creek
Date: October 17, 2016
Sampled By: BM
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 5.42'
Depth to Water after Sampling: 20.10'
Total Depth to Well: 43.2'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1712	38'	175		25.52	6.06	8.09	1.15	1	1000 slightly cloudy, no odor
1717	↓	↓		25.69	6.07	8.12	1.03	-2	894 " " "
1722				25.24	6.06	8.11	0.80	0	494 beginning to clear up
1727				24.53	6.05	8.14	0.82	2	362 still clearing
1732				25.10	6.03	8.14	0.47	2	261 "
1737	↓	↓	3.5	25.34	6.03	8.13	0.43	2	258 "
Samples Collected									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 44.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 18, 2016
Sampled By: BA
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 21.27
Depth to Water after Sampling: 33.45
Total Depth to Well: 46.9'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
9:02	44.5	175		23.43	5.21	9.92	0.28	104	1000 Cloudy; no odor
9:07	↓	↓		23.85	5.24	9.90	0.25	97	744 " "
9:12	↓	↓	≈ 1.0	23.89	5.26	9.85	0.24	92	521 clearing up
		Samples Collected							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~45.5
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 18, 2016
Sampled By: SM
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 27.30'
Depth to Water after Sampling: 29.78'
Total Depth to Well: 48.2'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1008	45.5	~200		24.50	4.32	8.73	0.24	268	1000 Cloudy; no odor
1013	↓	↓		24.78	4.32	8.68	0.25	271	743 " "
1018				24.89	4.31	8.64	0.84	274	451 Clearing up
1023	↓	↓	2.5	24.72	4.31	8.66	0.76	274	266
Samples Collected									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-4
Sample ID: _____ Duplicate ID: DUP-1
Sample Depth: ≈49
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 18, 2016
Sampled By: SM
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 24.15'
Depth to Water after Sampling: 42.21'
Total Depth to Well: 51.5'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1111	49	175		24.98	6.24	5.67	0.18	85	180 stained; no odor
1116	↓	↓		25.14	6.25	5.66	0.15	82	62.9 clearing
1121	↓	↓	≈2	25.09	6.26	5.66	0.15	79	36.8
	Samples Collected								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Duplicate samples taken (DUP-1)
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		EQBK-101816 taken @ 1230

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: APMW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 50'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 18, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 13.09'
Depth to Water after Sampling: 13.91'
Total Depth to Well: 52.8'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1344	≈ 50'	≈ 200		26.37	5.70	4.80	0.13	84	934 cloudy/brown; sulfur odor
1349	↓	↓		26.44	5.69	4.83	0.12	86	460 " " "
1354	↓	↓	≈ 2.0	26.68	5.69	4.74	0.11	85	178 Clearing up
			Samples Collected						

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~40.5'
Project and Task No.: 6706150060
Project Name: TMPA-Gibbons Creek
Date: October 18, 2016
Sampled By: SM
Method of Purging: Submersible pump
Method of Sampling: low flow

Initial Depth to Water: 10.86'
Depth to Water after Sampling: 11.76'
Total Depth to Well: 43.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1438	~40.5	175		25.31	3.70	5.65	0.18	299	272	cloudy/lt. tan slight sulfur odor
1443	↓	↓		25.16	3.68	5.70	0.14	294	642	" "
1448	↓	↓	~2.0	25.11	3.64	5.69	0.13	311	126	clearing up
	Samples Collected								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-1D
Sample ID: _____ Duplicate ID: _____
Sample Depth: 40.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 18, 2016
Sampled By: BS
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 13.50'
Depth to Water after Sampling: 13.76'
Total Depth to Well: 43'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1523	40.5	150		25.98	5.90	1.99	0.33	37	0.0	cloudy/tan; sulfur odor
1528	↓	↓		26.13	5.91	2.00	0.19	41	770	" " "
1533				26.22	5.90	2.03	0.14	54	233	beginning to clear up
1538	↓	↓	2.0	26.26	5.89	2.03	0.13	60	69.6	
—	Samples Collected								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 19, 2016
Sampled By: _____
Method of Purging: _____
Method of Sampling: _____

Initial Depth to Water: 10.41
Depth to Water after Sampling: _____
Total Depth to Well: 43.4'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
0815									
* Unable to sample well. Casing is warped at approx. 4' below TOC. Pump gets stuck.									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-4
Sample ID: _____ Duplicate ID: DUP-2
Sample Depth: ≈ 40'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 19, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 14.99'
Depth to Water after Sampling: 16.95'
Total Depth to Well: 42.7'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
0853	40	≈250		23.33	6.20	8.05	0.26	-14	173 lt. tan; slight sulfur odor
0858	↓	↓		23.38	6.18	8.10	0.15	-7	48 clearing up
0903				23.42	6.18	8.12	0.11	-4	22.5 clear
0908				23.46	6.17	8.13	0.08	-3	6.5
0913	↓	↓	≈3.5	23.48	6.18	8.14	0.08	-1	0.0
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		DUP-2 taken
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈25.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 19, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 17.13'
Depth to Water after Sampling: 17.67'
Total Depth to Well: 28.2'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1012	≈25.5	175		24.28	3.68	7.52	1.52	327	0.0	Reddish-brown; no odor
1017	↓	↓		24.35	3.68	7.47	0.28	337	1000	" " "
1022				24.69	3.68	7.46	0.14	341	410	clearing up
1027				24.66	3.68	7.43	0.08	357	262	" "
1032				24.61	3.68	7.43	0.05	344	77	" "
1037	↓	↓	≈2.75	24.66	3.68	7.44	0.04	347	34	clear
Samples Taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈21'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 19, 2016
Sampled By: BM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 11.43'
Depth to Water after Sampling: 13.69'
Total Depth to Well: 23.6'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1335	≈21'	175		26.97	6.00	11.2	0.57	217	416	lt. tan; no odor
1340	↓	↓		27.26	6.02	11.3	0.31	206	242	" "
1345				27.34	6.06	11.4	0.21	198	120	clear
1350	↓	↓	≈1.5	27.37	6.11	11.4	0.19	189	68	"
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈22'
Project and Task No.: 670615 0060
Project Name: TMPA – Gibbons Creek
Date: October 19, 2016
Sampled By: SM
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 16.22'
Depth to Water after Sampling: 20.24'
Total Depth to Well: 24.3'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1420	≈22	200		25.79	4.79	12.4	0.56	249	101	lt. straw stain; no odor
1425	↓	↓		25.87	4.71	12.4	0.43	264	12.5	clear
1430	↓	↓	≈2.0	25.94	4.70	12.4	0.39	272	0.0	
		Samples Taken								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-6
Sample ID: _____ Duplicate ID: _____
Sample Depth: 22'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: October 19, 2016
Sampled By: BH
Method of Purging: submersible pump
Method of Sampling: low flow

Initial Depth to Water: 17.08'
Depth to Water after Sampling: 20.65'
Total Depth to Well: 23.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1502	22'	150		26.39	4.12	13.7	1.66	360	0.0	cloudy/brown; no odor
1507	↓	↓		27.03	4.14	13.7	1.41	364	961	" "
1512				27.36	4.15	13.8	1.27	372	505	clearing up
1517			1.0	27.66	4.15	13.8	1.27	378	227	"
Samples Collected									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Set pump at one(1) foot above total depth due to lack of volume and drawdown
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP/AP-MW-1
Sample ID: ——— Duplicate ID: ———
Sample Depth: ~38'
Project and Task No.: 6706.15.0060
Project Name: TTMPA
Date: 12.20.2016
Sampled By: M. Stevens
Method of Purging: SUB PUMP
Method of Sampling: LOW FLOW

Initial Depth to Water: 7.04'
Depth to Water after Sampling: 11.92'
Total Depth of Well: 43.20'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen ~~(mg/L)~~ %	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU/
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU/
1351	38'	150	—	19.59	6.51	8.83	28.5	4	104/CLOUDY/SLIGHT ODOR
1356	38'	150	—	20.43	6.05	8.76	3.8	-14	583/CLOUDY/NTU'S UNSTABLE
1401	38'	150	—	20.84	6.01	8.68	2.5	-20	>1000/CLOUDY/NTU'S UP & DOWN
1406	38'	150	—	20.89	6.01	8.70	0.0	-22	882/CLOUDY
1411	38'	150	—	21.44	6.01	8.56	0.0	-21	794/CLOUDY
1416	38'	150	1½	21.89	6.01	8.54	0.0	-21	908/CLOUDY
1417	BEGAN COLECTING SAMPLES								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		TURBIDITY NEVER LEVELED OFF. WATER METER OK.
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP.MW.2
Sample ID: ——— Duplicate ID: ———
Sample Depth: ~44.5'
Project and Task No.: 6706.15.0060
Project Name: TTPA
Date: 12.20.2016
Sampled By: M. STEVENS
Method of Purging: SUB PUMP
Method of Sampling: LOW FLOW

Initial Depth to Water: 22.04'
Depth to Water after Sampling: 34.33'
Total Depth of Well: 46.90'
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
	~	~	~						ATV
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1548	44.5	150	—	21.24	5.45	9.88	1.83	30	>1000/FAIR ODOR/CLOUDY
1553	44.5	150	—	21.47	5.00	9.94	0.04	76	>1000/CLOUDY
1558	44.5	150	—	21.52	5.02	9.93	0.00	73	872/CLOUDY
1603	44.5	150	—	21.55	5.03	9.92	0.00	72	701/CLOUDY
1608	44.5	150	1½	21.54	5.03	9.90	0.00	72	648/CLOUDY
1610	BEGAN COLLECTING SAMPLES								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP.MW.3
Sample ID: ——— Duplicate ID: ———
Sample Depth: ~45.5
Project and Task No.: 6706.15.0060
Project Name: TMPA
Date: 12.20.2016
Sampled By: M. STEVENS
Method of Purging: SUB PUMP
Method of Sampling: LOW FLOW

Initial Depth to Water: 27.63'
Depth to Water after Sampling: ———
Total Depth of Well: 48.2'
Well Diameter: 2"
1 Casing/Borehole Volume: ——— (Circle one)
4 Casing/Borehole Volumes: ——— (Circle one)
Total Casing/Borehole Volumes Removed: ———

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
	~	~	~						NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1703	45.5	150	—	21.38	4.56	8.49	1.21	184	0.0/CLOUDY/NO ODOR
1708	45.5	150	—	21.09	4.27	8.44	0.08	239	0.0/SLIGHTLY CLOUDY/NO ODOR
1713	45.5	150	—	21.21	4.17	8.41	0.00	263	0.0/SLIGHTLY CLOUDY
1718	45.5	150	1 3/4	21.22	4.16	8.39	0.00	266	0.0/SLIGHTLY CLOUDY
1720	BEGAN COLLECTING SAMPLES								
1750	COLLECTED EQUIPMENT BLANK EQBK.MPS.122016								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		MONITOR READING
Field Temperature °C		Field Temperature °C		0.0NTU-WATER
Instrument Reading (mV)		Instrument Reading (mg/L)		IS CLOUDY
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP.TW.3
Sample ID: —— Duplicate ID: DUP.2
Sample Depth: ~41'
Project and Task No.: 6706.15.0060
Project Name: TMPA
Date: 12.21.2016
Sampled By: M. STEVENS
Method of Purging: PERI PUMP
Method of Sampling: LOW FLOW

Initial Depth to Water: 10.51'
Depth to Water after Sampling: 11.02'
Total Depth of Well: 43.4'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
	~	~	~						NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
0859	41'	150	——	19.79	5.06	1.81	0.80	108	4.2/CLEAR/no odor
0904	41'	150	——	20.30	5.11	1.79	0.11	131	3.4/CLEAR
0909	41'	150	——	20.38	5.13	1.77	0.00	112	2.7/CLEAR
0914	41'	150	1½	20.71	5.11	1.76	0.00	107	2.8/CLEAR
0916	BEGAN COLLECTING SAMPLES								
0950	DUP.2 COLLECTED								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW-6
Sample ID: — Duplicate ID: —
Sample Depth: ~23'
Project and Task No.: 6706-15-0060
Project Name: TMPA
Date: 12-21-2016
Sampled By: M. STEVENS
Method of Purging: PERI PUMP
Method of Sampling: LOW FLOW

Initial Depth to Water: 17.41'
Depth to Water after Sampling: 20.09
Total Depth to Well: 25.08'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
	~	~	~						NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1215	23'	150	—	24.44	4.00	12.3	1.57	327	79.4/CLEAR/NO ODOR
1220	23'	150	—	24.10	3.93	12.4	0.59	390	5.4/CLEAR
1225	23'	150	—	24.02	3.92	12.5	0.52	396	3.9/CLEAR
1230	23'	150	1	23.98	3.92	12.5	0.48	397	2.9/CLEAR
1232	BEGAN COLLECTING SAMPLES								
1315	EQUIPMENT BLANK COLECTED EQBK-MPS-122116								

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: ~~SEE SFL-MW-6 SAMPLING RECORD~~

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes:

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP - MW4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006Q
Project Name: TMA Gibbons Creek Mine
Date: 12-20-16
Sampled By: SCM
Method of Purging: Monsoon
Method of Sampling: Low flow

Initial Depth to Water: ~~24.30~~ 24.30
Depth to Water after Sampling: 46.67
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU	Smell/Color
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%		
1627		~250		22.46	5.70	11.2	0.92	105	234	Light yellow/No odor
1632				22.41	5.73	11.2	0.70	89	101	
1637				22.62	5.74	11.1	0.54	77	46.8	Clearing up
1642				23.32	5.76	11.1	0.52	70	15.1	Clearing
1647				23.20	5.76	11.1	0.43	69	16.3	Adjusted pump rate
1652			5	23.40	5.78	11.0	0.40	66	16.5	

LD Samples taken @ ~~1647~~ SM 1652

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP-MW5
Sample ID: _____ Duplicate ID: Dup-1
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek Mine
Date: 12-21-16
Sampled By: SCM
Method of Purging: SS Monsoon
Method of Sampling: Low flow

Initial Depth to Water: 11.02
Depth to Water after Sampling: 11.27 after Dup-1 and ~~same~~ 15 minutes
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU / Color/odor
0846		~250		21.53	3.42	5.51	0.74	346	443 / Light tan/No odor
0851				21.69	3.42	5.51	0.56	360	36.3
0856				21.75	3.43	5.51	0.47	363	0.0 / Mostly clear
0901				21.60	3.43	5.52	0.46	364	0.0 / Very clear
0906			5	21.60	3.43	5.50	0.45	363	0.0

→ Samples taken @ 0906

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes: ☆ Pump spool wonky; caused me to stir up extra turbidity when ~~tagging~~ tagging bottom of well

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP-MW4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek Mine
Date: 12-21-16
Sampled By: SCM
Method of Purging: SS Mannoon
Method of Sampling: Low-Flow

Initial Depth to Water: 13.04
Depth to Water after Sampling: 13.71
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) Color/odor
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1017		~250		21.15	5.44	4.81	0.52	123	666 Light brown
1022				21.07	5.44	4.74	0.42	117	129 Methane Odor
1027				21.41	5.45	4.72	0.38	112	60.7 Tan - clearing up
1032				21.34	5.44	4.73	0.34	108	21.3
1037				21.13	5.44	4.76	0.32	105	1.3 clearing
1042			7	21.24	5.45	4.76	0.32	102	0.0 Nearly clear

↓ Samples taken @ 1042

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP-MW 1D
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek Mine
Date: 12-21-16
Sampled By: SCM
Method of Purging: SS Monsoon
Method of Sampling: Low flow

Initial Depth to Water: 13.90
Depth to Water after Sampling: 13.88
Total Depth to Well: [illegible]
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU / Color / Odor
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1141		~250	[illegible]	22.55	5.62	2.02	0.80	78	593 Light Tan-
1146				22.91	5.61	2.06	0.53	86	170 heavy methane odor
1151				22.63	5.63	2.07	0.44	[illegible]%	383
1156				22.92	5.62	2.07	0.39	106	7.6 clearing up (color)
1201				22.93	5.63	2.07	0.35	112	2.7
1206				23.05	5.63	2.07	0.32	115	0.7
1211				23.14	5.64	2.07	0.31	119	0.0 Very clear-
1216			5	23.19	5.64	2.07	0.31	121	0.0 odor still present
					Samples		Taken @		
								1216	

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW5
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006O
Project Name: TMPA Gibbons Creek Mine
Date: 12-21-16
Sampled By: SCM
Method of Purging: SS Masterflex
Method of Sampling: Low-flow

Initial Depth to Water: 16.25'
Depth to Water after Sampling: 19.94
Total Depth to Well: ~~20~~
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU Color/odor
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1504		~250		24.37	4.71	10.9	0.96	231	84.2 Slight tan, mild methane odor
1509				24.53	4.65	10.9	0.66	245	41.0
1514				24.61	4.61	10.9	0.51	253	16.7
1519				24.61	4.59	10.9	0.44	261	6.1
1524				24.61	4.55	10.9	0.38	270	1.3
1529				24.69	4.53	11.0	0.41	276	0.0
1534				24.67	4.50	11.0	0.39	282	0.0
1539			5	24.62	4.48	11.0	0.39	285	0.0
Lab Samples Taken @ 1539									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW2
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006O
Project Name: TMPA Gibbons Creek Mine
Date: 12-22-16
Sampled By: SCM
Method of Purging: SS MONSOON
Method of Sampling: Low-flow

Initial Depth to Water: 11.71
Depth to Water after Sampling: 12.92
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU / odor/color
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
0920		~250		22.28	6.54	22.6	0.60	178	520 / Murky white
0925				22.19	6.56	22.6	0.10	176	224 / No odor
0930				22.75	6.55	22.6	0.00	175	83.4 /
0935				22.80	6.54	22.7	0.00	175	33.9 / Clearing slightly
0940				22.88	6.54	22.7	0.00	176	16.0 /
0945			4.5	22.96	6.55	22.8	0.00	177	2.7 / Clearer
→ SCM files taken @ 0945									
→ EQBK 12-22-16/SCM taken @ 1010									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL - MW3
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150040
Project Name: IMPA Gibbons Creek Mine
Date: 12-22-16
Sampled By: SCM
Method of Purging: SS Monsoon
Method of Sampling: Low flow

Initial Depth to Water: 17.61
Depth to Water after Sampling: 17.70
Total Depth to Well: ~~22~~
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU	Color/odor
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	—	
1100		~250		22.33	3.76	16.9	0.11	367	>1000	yellow-brown
1105				22.43	3.74	17.0	0.00	369	>1000	No odor
1110				22.42	3.74	17.0	0.00	371	533	clearing slightly
1115				22.55	3.73	16.9	0.00	372	250	
1120				22.70	3.74	17.0	0.00	372	119	
1125				22.81	3.74	17.0	0.00	373	73.4	clearing slightly
1130			"	22.72	3.73	17.0	0.00	374	36.7	clearing
1135			4.5	22.74	3.73	17.0	0.00	374	20.1	
				→ Samples taken @ 1135						

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU would not go lower than ~19
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL - MW4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615CC60
Project Name: TMPA Gibbons Creek Mine
Date: 12-22-16
Sampled By: SCM
Method of Purging: SS Monsoon
Method of Sampling: Low-flow

Initial Depth to Water: 15.25
Depth to Water after Sampling: 16.61
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU	Color/odor
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	—	
1215		~250		22.43	6.26	18.3	0.57	20	325	Light/heavy tan/methane odor
1220				22.61	6.48	18.2	0.00	-20	382	
1225				22.79	6.45	18.5	0.00	-14	282	
1230				22.83	6.45	18.6	0.00	-6	65.7	Clearing
1235				22.81	6.44	18.6	0.00	-3	12.5	nearly clear
1240			3	22.88	6.45	18.6	0.00	-2	0.5	

Samples taken @ 1240

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~41'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 20, 2017
Sampled By: BS
Method of Purging: peristaltic
Method of Sampling: low flow

Initial Depth to Water: 10.49
Depth to Water after Sampling: 11.08
Total Depth to Well: 43.4'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1730	41'	225		19.86	5.06	1.81	2.43	177	29.0 Clear, no odor
1735	↓	↓		20.08	5.06	1.81	1.95	203	13.8
1740				20.29	5.03	1.79	1.52	192	6.2
1745				20.40	5.04	1.78	1.00	126	3.8
1750				20.39	5.04	1.78	0.0	113	0.6
1755	↓	↓	~2.0	20.41	5.05	1.78	0.0	108	0.0 ↓
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-1D
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈41'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 21, 2017
Sampled By: BJ
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 13.68'
Depth to Water after Sampling: 14.37'
Total Depth to Well: 43'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
9:32	≈41'	≈150		18.21	5.84	1.88	0.02	32	82.4 slightly cloudy; no odor
9:37	↓	↓		17.99	5.84	1.90	0.0	17	99.4 slight hydrocarbon odor
9:42				17.95	5.84	1.92	0.0	32	71.2 "
9:47				18.58	5.82	1.93	0.0	62	38.5 clearing up
9:52	↓	↓	≈1.5	18.68	5.82	1.94	0.0	87	24.6 "
Samples Taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 41'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 21, 2017
Sampled By: BH
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: [redacted] 11.36'
Depth to Water after Sampling: 12.16'
Total Depth to Well: 43.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
11:06	≈41'	≈200		19.72	3.79	5.37	0.0	314	544 lt.tan ; no odor
11:11	↓	↓		19.95	3.77	5.45	0.08	319	434 ↓
11:16				20.09	3.72	5.50	0.0	324	280 ↓
11:21				20.12	3.70	5.53	0.0	328	180 ↓
11:26				20.21	3.66	5.55	0.0	331	92.6 clearing up
11:31	↓	↓	≈1.5	20.31	3.65	5.55	0.0	332	58.8 "

Samples Taken

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Pump initially not working. Had to pull it & take apart.
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 50'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 21, 2017
Sampled By: BJ
Method of Purging: Submersible
Method of Sampling: low flow

Initial Depth to Water: 12.42'
Depth to Water after Sampling: 14.36'
Total Depth to Well: 52.8'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
12:10	≈50'	≈250		19.69	5.55	4.89	5.26	10	27.2 Clear; no odor
12:15	↓	↓		19.91	5.60	4.89	3.66	24	7.6 ↓
12:20				19.92	5.61	4.89	2.93	34	2.6
12:25				19.95	5.62	4.88	2.30	38	0.0
12:30				20.00	5.62	4.89	1.42	37	1.1
12:35				19.98	5.62	4.85	0.98	35	0.0
12:40	↓	↓	≈2.5	20.04	5.62	4.84	0.73	33	0.0 ↓
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		13:45 - EQBK-BJB-22117 taken
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP/AP MW-1
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 38'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 21, 2017
Sampled By: BJ
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 5.31'
Depth to Water after Sampling: 15.44'
Total Depth to Well: 43.2
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1427	≈38'	≈250		22.01	5.62	8.69	0.56	-10	76.4 lt. tan; no odor
1432	↓	↓		22.09	5.68	8.69	0.07	-18	112 slight hydrocarbon odor
1437				22.10	5.67	8.68	0.0	-20	287 ↓
1442				22.11	5.60	8.66	0.0	-19	328
1447				22.16	5.59	8.68	0.0	-16	407
1452	↓	↓	≈2.0	22.19	5.56	8.71	0.0	-13	432 ↓
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~~48~~ ~44'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 21, 2017
Sampled By: BA
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 20.24'
Depth to Water after Sampling: 34.28'
Total Depth to Well: 46.9'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1535	~44'	~250		21.66	4.79	10.1	0.20	148	91.9 slightly cloudy; no odor
1540	↓	↓		21.52	4.81	10.2	0.0	145	104 ↓
1545				21.61	4.82	10.2	0.0	138	101
1550				21.80	4.83	10.1	0.0	130	62.6 clearing up
1555	↓	↓	~2.0	21.86	4.84	10.1	0.0	124	48.9 "

Samples Taken

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSPMW-4
Sample ID: _____ Duplicate ID: DUP-1
Sample Depth: ≈49'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 21, 2017
Sampled By: BM
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 25.06'
Depth to Water after Sampling: 39.69'
Total Depth to Well: 51.5'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1646	≈49'	≈250		21.44	5.90	5.77	1.15	74	31.8 Clear; no odor
1651	↓	↓		21.51	5.93	5.77	0.03	73	26.1 ↓
1656				21.58	5.95	5.77	0.0	72	23.5
1701	↓	↓	≈1.5	21.59	5.95	5.77	0.0	72	22.0 ↓
Samples Taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		DUP-1 taken
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈45.5'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 22, 2017
Sampled By: BJ
Method of Purging: Submersible
Method of Sampling: low flow

Initial Depth to Water: 26.58'
Depth to Water after Sampling: 30.09'
Total Depth to Well: 48.2'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
09:12	≈45.5	≈250		20.20	4.48	8.53	Ø.Ø9	125	388 lt. tan; no odor
09:17				20.61	4.45	8.55	Ø.Ø	283	636
09:22				20.89	4.44	8.56	Ø.Ø	282	370
09:27				20.90	4.45	8.55	Ø.Ø	278	178
09:32				20.90	4.45	8.53	Ø.Ø	273	99.8 clearing up
09:37			≈2.0	20.96	4.45	8.51	Ø.Ø	266	64.7 "

Samples Taken

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-6
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈22.0
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 22, 2017
Sampled By: BJ
Method of Purging: peristaltic
Method of Sampling: low flow

Initial Depth to Water: 17.63'
Depth to Water after Sampling: 20.91'
Total Depth to Well: 23.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
14:12	≈22'	≈175		23.05	4.24	13.5	3.52	429	26.5 Clear; no odor
14:17	↓	↓		22.95	4.21	13.4	0.61	444	0.0 ↓
14:22				22.96	4.20	13.4	0.22	444	0.0
14:27	↓	↓	≈1.5	22.89	4.21	13.4	0.05	441	0.0
			Samples			Taken			

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Tubing left in well.
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-4
Sample ID: _____ Duplicate ID: DUP-2
Sample Depth: ≈ 40'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 22, 2017
Sampled By: BAT
Method of Purging: Submersible
Method of Sampling: low flow

Initial Depth to Water: 14.11'
Depth to Water after Sampling: 17.93'
Total Depth to Well: 42.7'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTu
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
15:35	≈40	≈200		22.57	6.32	7.77	0.25	-27	39.8 Clear; slight hydrocarbon odor
15:40				22.59	6.37	7.84	0.0	-23	15.4
15:45				22.60	6.36	7.87	0.0	-16	4.7
15:50				22.61	6.35	7.89	0.0	-14	0.0
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		DUP-2 collected
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 21'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 22, 2017
Sampled By: BJ
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 11.38'
Depth to Water after Sampling: 13.14'
Total Depth to Well: 23.6'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
16:54	≈ 21'	≈ 200		22.22	6.68	9.35	1.14	147	86.4 Slightly cloudy; no odor
16:59				21.83	6.61	9.43	0.45	157	53.1 clearing
17:04				21.75	6.58	9.48	0.14	164	19.7 "
17:09			≈ 1.5	21.68	6.58	9.49	0.02	164	7.6
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		17:55 - EQBK-BJG-22217 collected
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~22'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 23, 2017
Sampled By: BH
Method of Purging: Submersible
Method of Sampling: low flow

Initial Depth to Water: 15.77'
Depth to Water after Sampling: 19.23'
Total Depth to Well: 24.3'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
08:47	~22	~175		18.93	4.29	12.1	1.59	351	59.2 Clear; no odor
08:52	↓	↓		19.04	4.35	12.1	1.30	340	45.1 ↓
08:57	↓	↓		19.18	4.38	12.1	1.00	326	26.1 ↓
09:02	↓	↓	~1.5	19.26	4.38	12.1	0.96	320	18.0 ↓
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 25.5'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek
Date: February 23, 2017
Sampled By: BJ
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 17.28'
Depth to Water after Sampling: 17.73'
Total Depth to Well: 28.2'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
09:51	≈25.5'	≈250		21.15	3.46	7.32	Ø.Ø3	358	311 tan; no odor
09:56	↓	↓		21.30	3.47	7.32	Ø.Ø	350	181 lt. tan; " "
10:01				21.47	3.47	7.31	Ø.Ø	347	116 ↓
10:06				21.59	3.46	7.31	Ø.Ø	345	72.6 ↓
10:11				21.61	3.46	7.30	Ø.Ø	344	49.4 clearing up
10:16	↓	↓	≈2.5	21.62	3.46	7.30	Ø.Ø	343	32.1 " "

Samples Taken

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		11:20 - EQBK-BJG-22317 collected
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL- MW 3
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706 150060
Project Name: TMPA GC Mine
Date: 5-2-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow Sub

Initial Depth to Water: 17.56
Depth to Water after Sampling: 17.76
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance ~~(µS/cm)~~ mS/cm	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU	
0915		~250		23.90	3.69	6.91	2.11	467	190	Light brown
0920		~250		24.37	3.66	6.92	1.24	437	190	NTU dropping
0925				24.73	3.66	6.91	0.98	424	69.8	clearing
0930				25.00	3.67	6.89	0.85	419	36.1	clearing
★ 0935			2.5	25.10	3.67	6.88	0.79	403	30.1	NTU at lowest point

→ Samples taken @ 0935

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW4
Sample ID: _____ Duplicate ID: DUP-1
Sample Depth: _____
Project and Task No.: 670615006O
Project Name: TMPA GC M.Ie
Date: 5-2-17
Sampled By: SCM
Method of Purging: Low flow Sub.
Method of Sampling: Low flow Sub.

Initial Depth to Water: 14.98
Depth to Water after Sampling: _____
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm) mS	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1018		~250		25.07	6.10	7.55	1.98	38	20.8 light tan / heavy sulfur odor
1023				24.94	6.17	7.63	0.93	22	57.3
1028				24.96	6.18	7.67	0.67	23	14.4 clearing
1033				24.95	6.17	7.69	0.55	26	7.3
* 1038			4	24.95	6.17	7.71	0.50	27	5.5 clearing

Samples collected @ 1038

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-18
Sample ID: _____ Duplicate ID: _____
Sample Depth: 49'
Project and Task No.: 6706150060
Project Name: TMPA Gibbons Creek Mine
Date: 5-2-17
Sampled By: SCM/BG
Method of Purging: Low flow peristaltic
Method of Sampling: Low flow peristaltic

Initial Depth to Water: 8.88'
Depth to Water after Sampling: _____
Total Depth to Well: 50.95'
Well Diameter: 4"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1223	49'	~200		24.79	7.41	4.48	3.09	-129	3.8
1228	↓	↓		24.30	7.39	4.46	2.65	-134	0.0
1233				23.90	7.38	4.47	2.45	-130	0.0
☆ 1238			~1	23.66	7.39	4.48	2.34	-136	0.0

slight sulfur odor mostly clear

→ Samples Collected @ 1238

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: TOC is 19" ags
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-15
Sample ID: _____ Duplicate ID: _____
Sample Depth: 24.30'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 2, 2017
Sampled By: BA
Method of Purging: low flow
Method of Sampling: peristaltic

Initial Depth to Water: 4.62'
Depth to Water after Sampling: 4.78'
Total Depth to Well: 26.80'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1736	24.30	≈200		29.33	3.98	2.70	4.47	372	0.0 Clear; no odor
1741	↓	↓		26.92	3.70	3.33	3.10	328	0.0
1746				26.44	3.54	3.62	2.80	324	0.0
1751	↓	↓	≈2.0	26.12	3.49	3.65	2.66	324	0.0
Samples Taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: TOC is 29" ags
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW2
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006a
Project Name: TMPA GC Mine
Date: 5-3-17
Sampled By: SCM
Method of Purging: Low-flow Sub.
Method of Sampling: Low-flow Sub.

Initial Depth to Water: 11.10
Depth to Water after Sampling: 12.13
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____
(Circle one)
4 Casing/Borehole Volumes: _____
(Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
0936		~200		23.86	5.85	9.88	2.49	177	109 mostly clear
0941				24.19	5.98	9.94	1.67	158	41.9
0946				24.54	6.09	9.98	1.23	140	16.4
0951				24.63	6.13	10.0	1.03	133	9.9
0956				25.01	6.15	10.5	0.89	128	6.1 very clear
1001				25.11	6.17	10.6	0.81	125	3.6
✱ 1006			3.5	25.13	6.19	10.7	0.76	122	1.9
				→ Samples taken @ 1006					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW5
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615CC60
Project Name: TMA GC Mine
Date: 5-3-17
Sampled By: SCM
Method of Purging: Low flow Sub.
Method of Sampling: Low flow Sub.

Initial Depth to Water: 15.9
Depth to Water after Sampling: 18.91
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1045		~200		24.96	4.67	11.5	2.64	323	19.8 Mostly clear
1050				25.24	4.58	11.6	1.34	328	6.7
1055				25.36	4.56	11.6	1.12	328	4.0
1100				25.53	4.53	11.6	0.93	330	1.8 Very clear
1105				25.57	4.51	11.6	0.86	330	1.5
* 1110			3	25.41	4.49	11.6	0.78	336	1.0

→ Samples taken @ 1110

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP/AP MW-1
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006a
Project Name: TMPA
Date: 5-3-17
Sampled By: SCM
Method of Purging: Low flow Sub.
Method of Sampling: Low flow Sub

Initial Depth to Water: 6.46
Depth to Water after Sampling: 17.49
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
								NTU	
1345		~250		26.03	5.84	8.39	1.80	-13	964 Light brown Moderate Sulfur odor
1350				26.41	5.85	8.41	0.97	0	583
1355				27.16	5.85	8.41	0.76	-1	435 clearing slightly
1400				27.65	5.85	8.42	0.69	2	335 clearing odor not present
1405				28.21	5.85	8.42	0.61	5	264 Slight tan
1410				28.95	5.84	8.52	0.66	7	226 [illegible]
1415				28.95	5.82	8.55	0.68	12	145
☆1420			~3.5	28.39	5.80	8.59	0.61	13	94.0 ← Lowest NTU

→ Samples taken @ 1420

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		☆ Split radium Samples taken
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-6
Sample ID: _____ Duplicate ID: _____
Sample Depth: 21'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 3, 2017
Sampled By: BH
Method of Purging: low flow
Method of Sampling: peristaltic pump

Initial Depth to Water: 17.87'
Depth to Water after Sampling: 20.67'
Total Depth to Well: 23.1'
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTu
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
14:07	21'	≈150		26.93	3.97	13.1	4.36	444	0.0 Clear; no odor
14:12	↓	↓		26.89	3.97	13.2	3.78	462	0.0
14:17				27.00	3.97	13.2	3.43	464	0.0
14:22			≈2.0	27.14	3.99	13.2	3.28	460	0.0
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSA-MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: IMPA GC Mine
Date: 5-3-17
Sampled By: SCM
Method of Purging: Low flow Sub.
Method of Sampling: Low flow Sub.

Initial Depth to Water: 21.34
Depth to Water after Sampling: 44.67
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1520		~200		26.68	4.86	9.56	1.09	136	NTU Slightly brown 685 Moderate Sulfur odor
1525				26.01	4.88	9.55	0.75	127	451 Slight tan
1530				26.42	4.89	9.53	0.55	122	268 clearing
1535				26.27	4.91	9.53	0.50	119	146 odor still present
1540				26.84	4.94	9.51	0.45	113	89.3 Mostly clear
1545				27.48	4.96	9.49	0.45	111	70.3 + Lowest NTU
~~1550~~									

Samples collected @ 1545

* See Notes

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.:

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes: * Ran out of water; cranked up pump + lowered it; Fuse busted on controller - 2nd test America Jar is only 1/2 full

Document1

- EQBK/SCM/050317 Taken @ 1650

** Split Radium Samples taken

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: APMW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: 41'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 3, 2017
Sampled By: BS
Method of Purging: low flow
Method of Sampling: peristaltic pump

Initial Depth to Water: 10.38'
Depth to Water after Sampling: _____
Total Depth to Well: 43.4'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1601	41'	≈200		26.13	5.01	1.74	4.10	218	0.0	Clear; no odor
1606	↓	↓		25.80	4.99	1.72	3.90	231	13.3	
1611				25.63	5.04	1.69	3.74	222	0.0	
1616	↓	↓	≈2	25.69	5.02	1.70	3.62	219	0.0	
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Split radium samples also collected.
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-1D
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈40.5'
Project and Task No.: 6706150060
Project Name: TMPA-Gibbons Creek
Date: May 4, 2017
Sampled By: BM
Method of Purging: low flow
Method of Sampling: submersible

Initial Depth to Water: 13.96'
Depth to Water after Sampling: 14.44'
Total Depth to Well: 43.0
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
08:47	≈40.5'	≈200		21.86	5.95	1.83	3.39	151	33.3 Clear; no odor
08:52	↓	↓		22.14	5.93	1.84	3.23	143	13.0
08:57	↓	↓	≈1.5	22.20	5.94	1.85	3.11	143	0.0
	Samples Taken								

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Purged for 10 min. prior to taking readings.
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		Duplicate/split radium samples collected

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP-MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706 15 0000
Project Name: TMPA GC M.n.e
Date: 5-4-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow Sub

Initial Depth to Water: 23.98
Depth to Water after Sampling: 41.24
Total Depth to Well: [illegible]
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (~~µS/cm~~ mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
0930		~200		22.39	6.11	5.37	1.48	[illegible] 18	43.9 No odor
0935				22.14	6.17	5.37	1.08	13	18.1 Mostly clear
0940				23.29	6.17	5.37	0.83	10	7.3
0945				23.33	6.17	5.36	0.72	8	3.5 Very clear
0950				23.18	6.20	5.35	0.65	6	1.5
0955			2.5	23.05	6.26	5.35	0.64	5	0.2

* 0 Samples taken @ 0955

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: * Split Radium Samples taken (Test America)
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-5
Sample ID: _____ Duplicate ID: DUP-3
Sample Depth: ≈40.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 4, 2017
Sampled By: BJ
Method of Purging: low flow
Method of Sampling: submersible

Initial Depth to Water: 11.29'
Depth to Water after Sampling: 11.94'
Total Depth to Well: 43.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
10:41	≈40.5	≈150		22.40	3.64	5.56	3.39	302	356 chalky; no odor
10:46	↓	↓		22.50	3.63	5.66	3.12	328	155
10:51				22.77	3.63	5.66	3.00	340	78.8 clearing up
10:56				22.74	3.63	5.66	2.90	351	32.4
11:01	↓	↓	≈1.5	22.86	3.63	5.67	2.83	356	9.6
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Duplicate samples collected
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		Split radium samples collected
Model or Unit No.:		Model or Unit No.:		Good recharge

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP-MW-3
Sample ID: _____ Duplicate ID: Dup-2
Sample Depth: _____
Project and Task No.: 670615006O
Project Name: TMPA GC Mine
Date: 5-4-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow Sub.

Initial Depth to Water: 27.24
Depth to Water after Sampling: 29.47
Total Depth to Well: [redacted]
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1100		200		23.71	4.45	8.38	1.61	288	256 tan/cloudy No odor
1105				23.07	4.32	8.41	0.88	299	528
1110				24.30	4.32	8.39	0.66	299	184
1115				24.45	4.32	8.35	0.57	300	75.8 clearing
1120				24.47	4.33	8.33	0.50	309	35.4
★ 1125			2.5	24.74	4.34	8.32	0.45	300	21.4 mostly clear

Samples taken @ 1125

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: ★ Split Radium samples taken (Test AMERICA)
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

Document1

★★ EQBK/SCM/050417 Taken @ 1255

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈50.0'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 4, 2017
Sampled By: BJG
Method of Purging: low flow
Method of Sampling: submersible pump

Initial Depth to Water: 13.25'
Depth to Water after Sampling: 14.19'
Total Depth to Well: 52.8'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1236	≈50.0'	≈150		23.46	5.71	5.02	3.92	52	37.9 Clear; sulfur odor
1241	↓	↓		23.39	5.70	4.99	3.83	65	36.2
1246				23.59	5.71	4.99	3.39	68	20.2
1251				23.79	5.71	4.96	2.73	86	3.1
1256	↓	↓	≈1.5	23.75	5.71	4.97	2.68	92	0.0
Samples Taken									
1354 – EQBK-BJG-50417 taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Split radium samples collected
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		1354 - Equip. blank taken

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-7
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈55.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 11, 2017
Sampled By: BT
Method of Purging: low flow
Method of Sampling: submersible

Initial Depth to Water: 13.65'
Depth to Water after Sampling: 14.79'
Total Depth to Well: 58.11'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1142	≈55.5	≈150		24.40	6.56	8.04	3.29	-35	55.4 clear; no odor
1147	↓	↓		24.83	6.55	8.28	2.79	-41	79.0
1152				24.96	6.43	8.97	2.58	-24	108
1157				24.75	6.39	9.35	2.51	-9	66.3
1202	↓	↓	≈1.5	24.61	6.37	9.46	2.44	-5	36.1
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MNW-18
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈ 48.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 30, 2017
Sampled By: RA
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 9.40'
Depth to Water after Sampling: 12.89'
Total Depth to Well: 50.95'
Well Diameter: 4"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1612	≈ 48.5	≈ 200		24.36	7.15	4.56	4.83	-120	0.0	clear; no odor
1617	↓	↓		24.64	7.16	4.55	3.52	-126	2.9	" "
1622				24.70	7.16	4.57	3.09	-125	6.9	slight gray tint
1627	↓	↓	≈ 1.5	25.12	7.16	4.54	3.02	-123	6.6	"
Samples Taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFLMW-7
Sample ID: _____ Duplicate ID: DUP-1
Sample Depth: ≈ 55.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: May 31, 2017
Sampled By: BJ
Method of Purging: Submersible
Method of Sampling: low flow

Initial Depth to Water: 13.56'
Depth to Water after Sampling: 15.27'
Total Depth to Well: 58.11'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1105	≈55.5'	≈150		25.66	6.72	6.99	3.56	-56	30.8 Clear; no odor
1110	↓	↓		26.15	6.65	7.06	2.67	-52	14.6 ↓
1115				26.53	6.49	8.27	2.45	-29	6.3
1120				26.18	6.44	8.95	2.32	-17	3.3
1125	↓	↓	≈2.0	25.98	6.43	9.10	2.24	-12	2.2 ↓
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Good recharge
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		DUP-1 collected
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MNW-15
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈24'
Project and Task No.: 6706150060
Project Name: TMPA-Gibbons Creek
Date: May 31, 2017
Sampled By: BJ
Method of Purging: submersible
Method of Sampling: low flow

Initial Depth to Water: 4.85'
Depth to Water after Sampling: 5.10'
Total Depth to Well: 26.80'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1231	≈24'	≈200		26.48	3.66	3.53	4.85	326	269 Yellow; no odor
1236	↓	↓		26.86	3.65	3.69	2.89	320	144 ↓
1241				27.20	3.64	3.80	2.42	325	82.3 Clearing
1246				27.18	3.64	3.84	2.22	328	37.1 ↓
1251	↓	↓	≈2.0	26.96	3.64	3.86	2.12	327	22.9 ↓
Samples Taken									

1515 – EQBK-BJG-053117 collected

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Good recharge
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP/AP MW-1
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006D
Project Name: TMA GC Mine CCR
Date: 6-12-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 6.94'
Depth to Water after Sampling: 14.76'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1420		~150		25.77	5.73	8.55	4.70	49	219 NTU Light tan
1425				28.16	5.75	8.45	0.00	32	290
1430				27.89	5.76	8.33	0.00	29	307 slightly clearer
1435				28.19	5.75	8.47	0.00	28	312 cranked pump to lower NTU's cleaning
1440				25.34	5.73	8.64	0.00	30	232
1445				25.74	5.73	8.64	0.00	30	182 cloudy-white
★ 1450		~2.5		26.6	5.73	8.67	0.00	30	167

→ Sampled @ 1450

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU slowly dropping during purging, cranked flow rate once, then returned to low flow
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

★ DO Meter not working

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: ~~AP~~ AP MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006O
Project Name: TMPA GC Mine CCR
Date: 6-12-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 12.78' 13.47'
Depth to Water after Sampling: _____
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1650		~250		22.05	5.60	4.81	0.00	65	132 Tan + cloudy moderate HC odor
1655				22.81	5.51	4.82	0.00	74	58.7
1700				22.80	5.49	4.85	0.00	77	15.1 Much clearer odor nearly gone
1705				22.70	5.48	4.86	0.00	78	8.0 Nearly crystal clear odor very faint
★ 1710			~2.5	22.82	5.48	4.87	0.00	78	~~DR~~ & 5.3
~~1715~~									

★ Sampled @ 1710

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: Boards around well pad are slightly damaged- one board is cracked and nails sticking out of one corner
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

★ Horiba DO Meter not working

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈41'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: June 12, 2017
Sampled By: BJ
Method of Purging: low flow
Method of Sampling: peristaltic

Initial Depth to Water: 10.54'
Depth to Water after Sampling: _____
Total Depth to Well: 43.4'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1748	≈41	≈150		25.88	5.08	1.84	3.61	195	0.0 clear; no odor
1753	↓	↓		25.92	5.10	1.83	2.93	192	0.0
1758				25.98	5.11	1.82	2.68	189	0.0
1803				25.84	5.11	1.81	2.56	189	0.0
1808	↓	↓	≈1.5	25.83	5.12	1.80	2.52	188	0.0 ↓
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006.0
Project Name: IMPACC Mine CCR
Date: 6-12-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 11.09'
Depth to Water after Sampling: 11.35'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one) _____
4 Casing/Borehole Volumes: (Circle one) _____
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
									NTU
1800		~200		23.57	3.39	5.67	0.00	334	390 slightly cloudy tan very light HC odor
1805				23.41	3.37	5.76	0.00	336	78.5
1810				23.24	3.36	5.78	0.00	336	22.0 odor fading
1815			~3	22.95	3.35	5.79	0.00	333	19.0 nearly crystal clear odor nearly gone
~~1820~~									
1858		EQBK/SCM/061217				taken			

Sampled @ 1815

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU lowest point = 15.9
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		☆ DO meter on horiba not working
Model or Unit No.:		Model or Unit No.:		

Document1

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-6
Sample ID: _____ Duplicate ID: _____
Sample Depth: 22'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: June 13, 2017
Sampled By: BA
Method of Purging: low flow
Method of Sampling: peristaltic

Initial Depth to Water: 17.98'
Depth to Water after Sampling: 20.72'
Total Depth to Well: 23.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU BA
0948	22'	250		25.31	3.96	13.5	3.40	440	0.0 Clear; no odor
0953	↓	↓		25.40	3.97	13.6	3.07	440	0.4 ↓
0958				25.56	3.98	13.5	2.78	438	1.1
1003	↓	↓		25.57	3.99	13.5	2.70	434	1.2 ↓
		Samples Taken							

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-18
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615060
Project Name: TMPA GC Mine CCR
Date: 6-13-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub.

Initial Depth to Water: 9.38
Depth to Water after Sampling: ~~15.2~~ 13.72
Total Depth to Well: _____
Well Diameter: 4"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L) ★	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
0945		~150		22.09	6.87	4.93	0.00	-108	12.0 Almost crystal clear Moderate HC odor
0950				22.07	6.93	4.92	0.00	-122	11.7
0955				22.03	6.94	4.91	0.00	-126	11.5
~~1000~~				22.14	6.95	4.90	0.00	-128	11.9
★ 1005			~2.5	21.91	6.95	4.87	0.00	-130	13.5

Sampled @ 1005

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		★ DO Sensor Not Working
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP-MW-1D
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615CC60
Project Name: TMPA GC Mine CCR
Date: 6-13-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow Sub.

Initial Depth to Water: 13.81
Depth to Water after Sampling: 13.82
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1520		~200		26.47	5.58	1.89	2.02	221	124 Slightly cloudy white
1525				25.53	5.63	1.92	1.52	193	161
1530				25.50	5.62	1.93	1.17	167	35.4 clearer but still cloudy
1535				25.35	5.62	1.94	1.03	155	15.0
1540			~3.0	25.31	5.62	1.95	0.95	148	6.8 Very clear

Sampled @ 1540

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: ~~SS~~ SSP MW-3
Sample ID: _____ Duplicate ID: Dup-2
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: IMPA GC Mine CCR
Date: 6-13-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 27.34'
Depth to Water after Sampling: 29.20
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1755		~150		25.79	4.15	8.45	1.07	278	575 Light tan-cloudy
1800				25.22	4.17	8.49	0.89	277	358
1805				25.84	4.18	8.49	0.85	280	310 Much clearer
1810		~200		25.99	4.15	8.35	0.83	284	245 Bumped up rate slightly
1815				25.88	4.15	8.42	0.80	284	118
1820				25.33	4.16	8.48	0.78	283	71.3 very light tan-cloudy
* 1825			~3.5	25.17	4.16	8.47	0.75	284	48.1 very faintly cloudy

→ Sampled @ 1825

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU increasing until I temp. cranked the pump rate, then started going down (after first reading)
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

★ EQBK/SCM/061317 Taken @ 1915

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW5
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006Q
Project Name: TMA GC Mine
Date: 6-14-17
Sampled By: SCM
Method of Purging: Low Flow Sub
Method of Sampling: Low Flow Sub

Initial Depth to Water: 16.08
Depth to Water after Sampling: 18.71
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1005		~250		24.71	4.53	10.9	1.47	312	11.6 ~~Murky~~ clear very
1010				24.90	4.51	10.9	1.13	304	2.3
1015				24.89	4.50	10.9	0.99	304	0.0
1020				24.60	4.47	10.9	0.90	305	0.0 Crystal clean
1025				24.68	4.44	11.0	0.83	310	0.0
☆ 1030			~3.0	24.64	4.44	10.9	0.81	310	0.0

↳ Sampled @1030

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMPA-Gibbons Creek
Date: June 14, 2017
Sampled By: BJ
Method of Purging: low flow
Method of Sampling: submersible

Initial Depth to Water: 21.78'
Depth to Water after Sampling: _____
Total Depth to Well: 46.9'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1004	44.5	≈200		24.66	4.90	10.0	3.08	122	140 lt. tan; no odor
1009	↓	↓		24.81	4.89	9.96	2.60	131	184 ↓
1014				24.77	4.85	9.92	2.49	146	187
1019				24.83	4.83	9.90	2.48	161	156
1024				25.07	4.79	9.89	2.54	177	140
1029				25.34	4.78	9.87	2.58	188	104
1034	↓	↓	≈2.5	25.46	4.76	9.86	2.59	197	94.0 ↓
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		Pad beginning to crack
Field Temperature °C		Field Temperature °C		Poor recharge
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL-MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615A060
Project Name: IMPA GC Mine CCR
Date: 6-14-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow Sub

Initial Depth to Water: 11.22
Depth to Water after Sampling: 12.43
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
								MV	
1105		~200		24.05	5.75	9.93	1.54	215	20.5 slightly cloudy white
1110				24.47	5.81	10.0	0.98	223	38.2 clearing
1115				24.39	5.91	10.1	0.87	186	12.8
1120				24.61	5.99	10.1	0.80	164	6.2
1125				24.67	6.03	10.1	0.77	154	3.1
★1130			~3.0	24.72	6.05	10.1	0.74	147	2.0 Crystal clear
★1255	EQBK/SCM/061417					Taken @ 1255			

Sampled @ 1130

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: ~~49.0~~ 49.0' (49.0)
Project and Task No.: 6706150060
Project Name: TMPA-Gibbons Creek
Date: June 14, 2017
Sampled By: BJ
Method of Purging: low flow
Method of Sampling: submersible

Initial Depth to Water: 24.33'
Depth to Water after Sampling: 36.36'
Total Depth to Well: 51.5'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1129	49.0'	≈300		26.12	6.26	5.60	3.60	61	44.3 clear; no odor
1134	↓	↓		26.22	6.26	5.66	3.62	54	27.4 ↓
1139				26.45	6.26	5.65	2.34	51	25.6
1144				26.72	6.26	5.65	2.20	48	21.3
1149	↓	↓	≈2.0	27.02	6.26	5.64	2.13	45	19.0 ↓
		Samples Taken							
1255	– EQBK-BJG-061417 taken								

pH CALIBRATION (choose two)				Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-15
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615Q060
Project Name: IMPA GC Mine CCR
Date: 6-14-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: low flow sub.

Initial Depth to Water: 4.57'
Depth to Water after Sampling: 4.61'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1340		~200		26.04	3.50	3.56	1.55	356	MW 681 Very Mild HC odor
1345				27.39	3.51	3.70	1.01	333	1000 yellow-orange cloudy color
1350				28.78	3.51	3.75	0.89	331	440 clearer
1355				29.19	3.52	3.77	0.87	329	305
1400				29.13	3.52	3.76	0.81	328	254 Light yellow cloudy
1405				29.47	3.52	3.77	0.77	329	208
1410				29.80	3.53	3.77	0.96	330	148 Lighter yellow (clearer)
1415				29.93	3.53	3.77	0.74	339	105
1420			~2.5	29.79	3.53	3.77	0.74	332	51.1 cloudy - slightly yellow

Sampled @ 1420

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU
Standard Solution (mV)		Altitude / Salinity %		Lowest = 49.1
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-7
Sample ID: _____ Duplicate ID: Dup-3
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMA GC Mine CCR
Date: 6-14-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub.

Initial Depth to Water: 13.25
Depth to Water after Sampling: 14.16
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1500		~200		26.15	6.17	6.69	1.36	1	68.2 moderate HC odor cloudy-white
1505				26.88	6.32	7.40	0.95	-20	30.1
1510				27.38	6.21	8.63	0.85	-2	7.9 clearing
1515				27.26	6.19	8.90	0.81	13	3.1 Nearly clear odor mildly present
1520				26.81	6.18	8.98	0.79	19	1.0 clearing
1525				26.71	6.18	9.07	0.76	23	0.2
1530			~2.0	27.00	6.17	9.16	0.83	24	0.3 Crystal clear odor mildly present

└→ Sampled @ 1530

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: IMPA GC Mine CCR
Date: 6-14-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 17.61'
Depth to Water after Sampling: 17.74'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
								MTV	
1625		~200		25.86	3.68	6.95	2.18	395	664 Light tan-cloudy mild HC odor
1630				26.25	3.67	6.96	0.93	384	418
1635				26.14	3.66	6.96	0.80	381	222 clearer
1640				26.00	3.65	6.96	0.74	379	125 clearer, odor faded
1645				26.09	3.65	6.97	0.70	377	74.4
☆ 1650			2.5	25.97	3.64	6.96	0.66	378	43.7 nearly clear slightly cloudy
~~1655~~									

→ Sampled @ 1650

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTV
Standard Solution (mV)		Altitude / Salinity %		Lowest ≈ 41.0
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006.0
Project Name: IMPA GC Mine CCR
Date: 6-14-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 15.91
Depth to Water after Sampling: 16.83
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1725		~200		25.20	5.88	7.65	1.40	101	117 cloudy white moderate HC odor
1730				25.51	5.98	7.80	0.86	60	147
1735				25.42	5.98	7.86	0.76	52	69.6 clearer cloudy-white
1740				25.53	5.98	7.85	0.70	48	46.1 clearer
☆ 1745			~2.0	25.60	5.98	7.85	0.65	47	31.1 nearly crystal clear

Sampled @ 1745

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: Lowest NTU = 30.9
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

ELL SAMPLING
AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-18

Sample ID: _____ Duplicate ID: _____

Sample Depth: _____

Project and Task No.: 670615006.0

Project Name: MPA GC Mine CCR

Date: 6-27-17

Sampled By: SCM

Method of Purging: Low flow sub

Method of Sampling: Low flow sub

Initial Depth to Water: 9.43

Depth to Water after Sampling: ~~16.00~~ 15.55

Total Depth to Well: _____

Well Diameter: 4"

1 Casing/Borehole Volume: (Circle one) _____

4 Casing/Borehole Volumes: (Circle one) _____

Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1340		~150		23.97	7.37	4.53	0.58	161	NV
1345				25.21	7.11	4.53	6.96	-44	0.0 very clear
1350				26.26	6.92	5.03	6.36	-62	0.0
1355				24.94	6.86	5.07	6.55	-79	43.0 black + turbid and Med. HC color
1400				25.05	6.85	5.06	6.32	-108	66.2
1405				24.94	6.85	5.07	6.21	-115	68.4 clearer, but still grey/cloudy
1410				24.88	6.84	5.04	6.47	-102	49.2
1415			3	24.98	6.84	5.03	5.97	-105	38.8 nearly clear in color
									35.3 cloudy - clear

* Sampled @ 1415

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.:

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes: Pump struggling, I upped flow rate occasionally to keep up.

NTu start @ 0.0

Bug parts & vegetation — Turb. visible in tubing

No smell, they turned black

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-7

Sample ID: _____ Duplicate ID: _____

Sample Depth: _____

Project and Task No.: 6706150060

Project Name: TMPA GC Mine CCR

Date: 6-28-17

Sampled By: SCM

Method of Purging: Low Flow Sub

Method of Sampling: Low flow Sub.

Initial Depth to Water: 13.42'

Depth to Water after Sampling: 14.41'

Total Depth to Well: _____

Well Diameter: 2"

1 Casing/Borehole Volume: (Circle one) _____

4 Casing/Borehole Volumes: (Circle one) _____

Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1220		[redacted]		24.71	6.58	6.83	3.23	-58	NM Slightly cloudy-white
1225		~200		26.04	6.54	6.99	2.10	-61	33.3 mod tc odor
1230				25.41	6.40	8.26	1.87	-24	11.7 Clearing
1235				25.31	6.33	8.99	1.74	-11	0.0 Almost crystal clear odor still present
1240				25.25	6.32	9.21	1.67	-8	0.0
1245				25.35	6.31	9.28	1.61	-7	0.0 "
A 1250			~2.5	25.17	6.32	9.39	1.69	-8	0.0 "

Sampled @ 1250

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-15
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006O
Project Name: TMPA GC Mine CCR
Date: 6-28-17
Sampled By: SCM
Method of Purging: Low Flow Sub
Method of Sampling: Low Flow Sub

Initial Depth to Water: 4.59'
Depth to Water after Sampling: 4.63'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one) _____
4 Casing/Borehole Volumes: (Circle one) _____
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1320		~200		25.80	3.51	3.81	4.05	358	NV / Light orange-brown 173 Mild Hc odor
1325				25.93	3.48	3.92	1.89	319	337
1330				26.25	3.48	3.93	1.65	320	61.1 Light tan
1335			~~2.0~~	26.27	3.48	3.93	1.56	320	16.8 clearing
1340			~2.0	26.16	3.48	3.94	1.51	319	5.3 Almost Crystal clear, odor still present
				Sampled	@	1340			

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes: [illegible] climbed quickly NV climbed to >500 between 1st and 2nd reading, then dropped quickly

Document1

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-18
Sample ID: _____ Duplicate ID: Dup-1
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMA GCMinc CCR
Date: 7-19-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 9.71'
Depth to Water after Sampling: 15.52'
Total Depth to Well: 51'
Well Diameter: 4"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1200		~150		25.76	6.72	4.70	0.90	-77	NTU 0.0 clear mod. HC odor
1205				27.76	6.68	4.69	0.75	-88	0.0
1210				27.95	6.67	4.69	0.79	-90	0.0 Same
☆ 1215			~1.0	28.64	6.68	4.67	0.64	-93	0.0 odor faded slightly
~~1220~~									

→ Sampled @ 1215

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		☆ Dup-1 Taken
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-15
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: IMAGC Mine CCR
Date: 6-20-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow Sub

Initial Depth to Water: 4.98'
Depth to Water after Sampling: 5.04'
Total Depth to Well: 27.00'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1005		~200		26.96	3.52	3.54	1.73	347	24.8 slight tan no odor
1010				28.13	3.46	3.64	0.80	327	422
1015				28.91	3.46	3.79	0.64	311	441 yellow-orange
1020				28.94	3.46	3.86	0.58	314	191
1025				29.16	3.46	3.88	0.54	319	97.4 slight tan
☆ 1030			~1.5	29.47	3.46	3.89	0.49	324	52.5 clearer but still light yellow-orange

☆ Sampled @ 1030

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU climbing after first reading
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		NTU falling after 3rd reading
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

NTU lowest ≈ 51

WELL SAMPLING AND/OR DEVELOPMENT RECORD

13.21

amec foster wheeler

Well ID: SFL MW-7
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMP AGC Mine CCR
Date: 7-20-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow Sub

Initial Depth to Water: [redacted]
Depth to Water after Sampling: 14.61
Total Depth to Well: 58.1
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
1120		~150		27.34	6.54	6.56	0.91	-40	9.0 Crystal clear very mild HC odor
1125				28.55	6.53	6.67	0.89	-54	19.5
1130				28.83	6.53	6.55	0.54	-60	13.7
1135				28.69	6.41	8.18	0.51	-44	0.6
1140				28.43	6.36	8.61	0.44	-38	0.0 Odor No longer present
☆ 1145			~1.5	28.54	6.34	8.86	0.42	-35	0.0

Sampled @ 1145

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.:

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes:

Document1

1225 ☆ EQBK/SCM/072017 taken

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060
Project Name: TMA GC Mine CCR
Date: 8-22-17
Sampled By: SCM
Method of Purging: Low flow sub.
Method of Sampling: Low flow sub.

Initial Depth to Water: 15.25'
Depth to Water after Sampling: 16.68
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1635		~200		28.15	6.02	7.56	0.98	98	69.4 cloudy-white mild HC odor
1640				27.42	6.02	7.64	0.92	59	14.2 clearing
1645				27.09	6.01	7.66	0.82	49	8.0
1650				27.01	6.01	7.72	0.80	37	1.3
1655				26.66	6.01	7.71	0.71	33	0.0 Nearly crystal clear
☆ 1700			~2	26.92	6.01	7.71	0.64	31	0.0

☆ Samples taken @ 1700

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060.004
Project Name: TMPA GC Mine CCR
Date: 8-22-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 17.40
Depth to Water after Sampling: 17.55
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1730		~200		27.03	3.70	6.83	5.41	361	215 Light yellow/cloudy mild HC odor
1735				28.42	3.69	7.08	1.13	370	398
1740				29.36	3.70	7.20	0.88	372	372 Slightly clearer
1745				28.72	3.69	7.23	0.76	375	194
1750				26.81	3.66	7.32	0.72	376	186 NTU climbing
1755				26.29	3.66	7.22	0.60	376	396 NTU dropping
1800				26.24	3.68	7.19	0.68	376	184 Clearer
1805				26.18	3.67	7.17	0.62	376	122
☆ 1810		~3.5		26.01	3.67	7.16	0.67	376	81.1 Nearly clear but still cloudy

→ Sampled @ 1810

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU Lowest ≈ 80
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
1850 Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

☆ EQBK/SCM/0822 taken @ 1850

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MNW-15
Sample ID: _____ Duplicate ID: DUP-1
Sample Depth: ≈25.0'
Project and Task No.: 6706150060
Project Name: TMPA-Gibbons Creek
Date: August 22, 2017
Sampled By: BH
Method of Purging: low flow
Method of Sampling: peristaltic

Initial Depth to Water: 5.21'
Depth to Water after Sampling: 5.49'
Total Depth to Well: 27.0'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (NTU)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%		
1655	≈25.0	≈200		29.87	3.55	3.68	Ø.94	355	97.6	Clear; no odor
1700	↓	↓		29.17	3.41	3.79	Ø.49	360	29.1	↓
1705				28.63	3.46	3.82	Ø.27	359	Ø.Ø	
1710				28.27	3.42	3.82	Ø.19	358	Ø.Ø	
1715	↓	↓	≈1.5	28.11	3.42	3.82	Ø.14	357	Ø.Ø	↓
				Samples Taken						

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		DUP-1
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP-MW-3
Sample ID: _____ Duplicate ID: _____
Sample Depth: ≈41'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: August 22, 2017
Sampled By: BH
Method of Purging: low flow
Method of Sampling: peristaltic

Initial Depth to Water: 10.60'
Depth to Water after Sampling: 11.09'
Total Depth to Well: 43.4'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1825	≈41'	≈150		28.21	4.94	1.82	1.78	280	0.0	Clear; no odor
1830	↓	↓		26.72	4.93	1.85	0.66	311	0.0	↓
1835				26.22	4.87	1.87	0.30	320	0.0	
1840				26.26	4.83	1.85	0.17	322	0.0	
1845	↓	↓	≈1.5	26.06	4.79	1.85	0.14	324	0.0	↓
			Samples Taken						

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-6
Sample ID: _____ Duplicate ID: _____
Sample Depth: 21'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: August 23, 2017
Sampled By: BM
Method of Purging: low flow
Method of Sampling: peristaltic

Initial Depth to Water: 17.82'
Depth to Water after Sampling: 20.86'
Total Depth to Well: 23.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
0935	21'	≈150		26.27	3.96	12.5	1.36	465	1.5 Clear; no odor
0940	↓	↓		26.21	3.97	12.6	0.74	483	0.0 ↓
0945				26.09	3.95	12.7	0.66	479	0.0
0950				26.07	3.97	12.7	0.48	462	0.0
0955	↓	↓	≈1.0	25.98	3.98	12.7	0.42	457	0.0 ↓
Samples Taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: ~~SMMW-15~~ SFL MW-7
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706 150060.004
Project Name: TMDA GC Mine CCR
Date: ~~8-22-17 SM~~ 8-23-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 14.15'
Depth to Water after Sampling: 15.03'
Total Depth to Well: ~~SM~~ _____'
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one)
4 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU ~~Muddy clear~~ SM
940		~150		25.08	6.27	6.74	0.89	-19	8.2 mostly clear
945				25.14	6.22	8.26	0.68	-6	0.5 No color or odor
950				25.07	6.19	8.88	0.63	15	0.6
955				25.10	6.20	8.90	0.53	17	0.0 crystal clear
☆ 1000			~2	25.14	6.21	8.96	0.54	15	0.9

Sampled @ 1000

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-5
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060.004
Project Name: TMPA GC Mine CCR
Date: 8-23-17
Sampled By: SCM
Method of Purging: Low flow SVL
Method of Sampling: Low flow SVL

Initial Depth to Water: 16.40
Depth to Water after Sampling: 19.49
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
									NTV
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	~~4~~ 5m
1045		~200		25.39	4.61	11.3	2.12	315	~~Murky~~ 10.5 mostly clear
1050				26.18	4.59	11.3	1.00	310	5.5
1055				27.11	4.60	11.3	0.79	312	1.1
1100				26.07	4.57	11.3	0.68	316	0.0 Crystal clear
☆ 1105			~2	26.28	4.58	11.3	0.67	320	0.5

→ Sampled @ 1105

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MNW-18
Sample ID: _____ Duplicate ID: _____
Sample Depth: 48.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: August 23, 2017
Sampled By: BJ
Method of Purging: low flow
Method of Sampling: submersible

Initial Depth to Water: 10.16'
Depth to Water after Sampling: 13.29'
Total Depth to Well: 51.0'
Well Diameter: 4"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1129	48.5'	≈150		27.69	6.82	4.47	1.20	-60	0.0	Clear; slight sulfur odor
1134	↓	↓		27.85	6.77	4.71	0.53	-83	0.0	↓
1139				28.15	6.69	4.85	0.33	-98	0.0	
1144				28.54	6.69	4.87	0.25	-102	0.0	
1149	↓	↓	≈1.0	28.62	6.70	4.90	0.22	-104	0.0	↓
				Samples Taken					

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006O.004
Project Name: IMPA & Mine CCR
Date: 8-23-17
Sampled By: SCM
Method of Purging: Low flow sub.
Method of Sampling: Low flow sub.

Initial Depth to Water: 11.36
Depth to Water after Sampling: 12.64'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	-
1135		~200		26.10	5.80	10.3	1.07	226	97.3 cloudy white mild HC odor
1140				26.23	5.86	10.3	0.67	223	17.3 clearing
1145				26.30	5.96	10.3	0.57	214	5.4
1150				26.24	6.03	10.3	0.51	205	4.8 clearer
1155				26.49	6.08	10.3	0.47	193	0.0 crystal clear odor faded
☆1200			~2	26.87	6.09	10.3	0.44	188	0.0

Sampled @ 1200

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP/AP MW-1
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060.004
Project Name: TMPA GC Min CCR
Date: 8-23-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 7.30'
Depth to Water after Sampling: 14.39'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU –
1510		~200		27.72	5.86	8.54	1.36	-3	226 Brown Light ~~yellow~~ cloudy mild HC odor
1515				29.24	5.82	8.63	0.86	-3	345 NTU climbing
1520				29.87	5.83	8.64	0.70	6	439
1525				30.05	5.83	8.64	0.59	7	505
1530				30.19	5.83	8.62	0.51	8	527 NTU slowly dropping
1535				27.91	5.82	8.49	0.45	12	452 clearing slightly
1540				28.09	5.80	8.54	0.40	15	241 clearing
1545				28.22	5.80	8.57	0.36	16	164 clearing
☆ 1550			~2.5	28.35	5.80	8.58	0.34	17	119 Light yellow

Sampled @ 1550

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTV
Standard Solution (mV)		Altitude / Salinity %		Max = ~~528~~ 530
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		Lowest = 119
Model or Unit No.:		Model or Unit No.:		

1620 ☆ EQ BK/SCM/082317 taken @ 1620

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-2
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615006.0004
Project Name: TMPA GC Mine CCR
Date: 8-24-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub.

Initial Depth to Water: 21.95'
Depth to Water after Sampling: 36.15'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) MTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	~~Light~~
910		~200		23.87	4.54	9.88	1.46	200	221 Light brown
915				23.97	4.58	9.88	1.09	193	157 clearing
920				24.41	4.59	9.85	0.83	~~184~~ 175	88.4 clearing
925				24.88	4.58	9.82	0.98	200	66.0
930			~1.5	24.75	4.55	9.81	0.94	211	75.4 clearer but still light brown (faint)

* Sampled @ 0930

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-3
Sample ID: _____ Duplicate ID: Dup-2
Sample Depth: _____
Project and Task No.: 6706150060.004
Project Name: IMPA GC Mine CCR
Date: 8-24-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 28.07'
Depth to Water after Sampling: 29.82'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1010		~200		25.27	4.29	8.42	1.88	279	249 cloudy light yellow mild HC odor
1015				25.43	4.21	8.44	0.85	293	332 NTU climbing
1020				25.53	4.20	8.47	0.62	297	513
1025				25.76	4.21	8.48	0.53	288	281 NTU falling
1030				25.94	4.21	8.45	0.47	300	129
★ 1035			~2.0	26.01	4.20	8.42	0.44	302	67.1 clearer-cloudy white

→ Sampled @ 1035

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-1D
Sample ID: _____ Duplicate ID: _____
Sample Depth: 40.5'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: August 24, 2017
Sampled By: BM
Method of Purging: low flow
Method of Sampling: submersible

Initial Depth to Water: 13.80'
Depth to Water after Sampling: 14.32'
Total Depth to Well: 43.0'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1040	40.5'	≈200		25.36	5.85	1.83	1.17	108	82.5 Slightly cloudy; no odor
1045	↓	↓		25.55	5.78	1.85	0.53	116	127 "
1050				25.38	5.74	1.86	0.26	119	36.5 Clearing
1055				25.41	5.74	1.86	0.11	125	9.4 clear
1100	↓	↓	≈2.0	25.46	5.74	1.86	0.09	128	5.3 "
Samples Taken									

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SSP MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060.004
Project Name: IMPA & Mine CCR
Date: 8-24-17
Sampled By: CM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 24.50'
Depth to Water after Sampling: 38.04
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) MJ
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	—
1125		~200	~~0.8~~	27.75	6.03	5.45	1.63	129	27.3 Mostly clear very slightly cloudy
1130				27.50	6.04	5.52	0.80	101	16.8
1135				26.18	6.03	5.60	0.65	87	20.5 clearing
1140				25.82	6.03	5.63	0.49	80	12.1
1145				25.97	6.04	5.67	0.43	68	12.8 clearing
★ 1150		~1.5		25.57	6.05	5.62	0.42	61	18.3

★ Sampled @ 1150

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		NTU lowest ~12
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-5
Sample ID: _____ Duplicate ID: DUP-3
Sample Depth: ≈40.6'
Project and Task No.: 6706150060
Project Name: TMPA - Gibbons Creek
Date: August 24, 2017
Sampled By: BJ
Method of Purging: low flow
Method of Sampling: Submersible

Initial Depth to Water: 10.98'
Depth to Water after Sampling: 11.90'
Total Depth to Well: 43.1'
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	NTU
1149	≈40.6'	≈250		25.56	3.56	5.32	1.66	377	69.9 Slightly cloudy; no odor
1154	↓	↓		26.03	3.56	5.36	0.72	379	144 "
1159				26.16	3.55	5.34	0.44	383	48.1 Clearing
1204				26.06	3.55	5.36	0.27	384	21.2 Clear
1209	↓	↓		26.06	3.55	5.37	0.24	385	7.2 "
— Samples Taken —									
1335 — EQBK-BJG-082417 collected									

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.:

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes:
DUP-3
EQBK

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: AP MW-4
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060.004
Project Name: TMAA GC Mine CCR
Date: 8-24-17
Sampled By: SCM
Method of Purging: Low flow Sub
Method of Sampling: Low flow sub.

Initial Depth to Water: 13.00'
Depth to Water after Sampling: 13.76'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment) NTU
Low Flow Stabilization Criteria				+/- 3%	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	
1235		~200		24.53	5.49	4.98	1.44	83	66.1 very light yellow-cloudy
1240				25.32	5.48	4.98	0.64	86	31.5 very Mild HC odor
1245				25.00	5.47	4.96	0.52	88	13.1 clearing
1250				24.90	5.46	4.97	0.43	89	2.8 Almost crystal clear
1255				24.99	5.47	4.97	0.50	89	1.2
☆ 1300		~1.5		24.92	5.47	4.95	0.48	87	0.7 crystal clear

↳ Sampled @ 1300

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

1330 ☆ ↳ EQBK/SCM/082417 Taken @ 1330

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-18

Sample ID: _____ Duplicate ID: _____

Sample Depth: _____

Project and Task No.: 670615006.004

Project Name: TMPA GC Mine CCR

Date: 8-31-17

Sampled By: SCM

Method of Purging: Low flow Sub

Method of Sampling: Low flow Sub

Initial Depth to Water: 9.83'

Depth to Water after Sampling: 13.31'

Total Depth to Well: _____

Well Diameter: 4"

1 Casing/Borehole Volume: _____ (Circle one)

4 Casing/Borehole Volumes: _____ (Circle one)

Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1325		~150		25.78	7.20	4.81	0.80	-97	NTU 1.3 very clear
1330				26.03	6.68	5.07	0.10	-95	3.2 mild HC odor
1335				25.81	6.57	5.24	0.01	-95	3.7
1340				26.53	6.54	5.22	0.10	-94	3.4
1345			~1	26.81	6.55	5.24	0.12	-93	3.2
~~1350~~									
SM									

Sampled @ ~~1350~~ 1345

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-7
Sample ID: _____ Duplicate ID: Dup-1
Sample Depth: _____
Project and Task No.: 6706 150060
Project Name: TMA GC Mhc CCR
Date: 8-31-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 13.01
Depth to Water after Sampling: 13.96
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one) _____
4 Casing/Borehole Volumes: (Circle one) _____
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1800		~200		25.53	6.85	6.73	1.57	-12	46.7 Mild HC odor Murky clear
1805				25.47	6.38	6.83	1.21	-11	16.8 clearer
1810				25.07	6.18	8.54	0.00	45	6.1
1815				24.94	6.14	8.80	0.00	50	4.6
1820				24.95	6.12	8.96	0.00	55	2.9 clearer
☆ 1825			~2.0	24.77	6.11	9.11	0.00	56	2.1

☆ → Sampled @ 1825

☆ → Dup-1 Sampled @ —

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.:

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution (mV)		Altitude / Salinity %	
Field Temperature °C		Field Temperature °C	
Instrument Reading (mV)		Instrument Reading (mg/L)	
Model or Unit No.:		Model or Unit No.:	

Notes: ☆ D.O. Sensor possibly malfunctioning

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MNW-15

Sample ID: ____ Duplicate ID: ____

Sample Depth: ____

Project and Task No.: 6706150060

Project Name: TMPA GC Mine CCR

Date: 8-31-17

Sampled By: SCM

Method of Purging: Low flow Sub

Method of Sampling: Low flow Sub

Initial Depth to Water: 4.65'

Depth to Water after Sampling: 4.77

Total Depth to Well: ✱

Well Diameter: 2"

1 Casing/Borehole Volume: (Circle one) ____

4 Casing/Borehole Volumes: (Circle one) ____

Total Casing/Borehole Volumes Removed: ____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	✱ Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1910		~200		25.62	3.50	3.72	0.55	361	NTU 40.6 Cloudy white Moderate HC odor
1915				26.16	3.38	3.83	0.09	350	265 NTU climbed - tan color
1920				26.03	3.34	3.87	0.00	348	106 Clearing
1925				25.86	3.32	3.90	0.00	344	41.1
✱ 1930			~2.0	25.64	3.32	3.90	0.00	341	16.1 Clearer, but very slightly cloudy

Sampled @ 1930

NTU very slow decline below 16.0 took samples.

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.:

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION			
KCl Solution (μS/cm=μmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

ORP/REDOX CALIBRATION	
Standard Solution (mV)	
Field Temperature °C	
Instrument Reading (mV)	
Model or Unit No.:	

DISSOLVED OXYGEN CALIBRATION	
Altitude / Salinity %	
Field Temperature °C	
Instrument Reading (mg/L)	
Model or Unit No.:	

Notes: ✱ D.O. Sensor possibly malfunctioning

✱ No preservative

Document1

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: SFL MW-7
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060.0021
Project Name: IMAGE Mine CCR
Date: 9-7-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 13.15'
Depth to Water after Sampling: 13.91'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
									NTU
1015		~150		22.69	6.26	6.75	0.75	11	28.6 mostly clear cloudy—white
1020				23.18	6.30	7.04	0.29	15	24.0 Mild HC odor
1025				23.26	6.25	8.58	0.11	35	15.8
1030				23.29	6.26	8.61	0.00	30	7.3 Clearing
1035				23.33	6.24	8.87	0.00	35	3.4
☆1040			~2.0	23.36	6.24	8.99	0.00	34	2.8 Almost crystal clear— odor still Mild

Sampled @ 1040

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: Pump surging— adjusted flow rate accordingly during first and second reading
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-15
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 6706150060.004
Project Name: TMPA GC Mine CCR
Date: 9-7-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 5.00'
Depth to Water after Sampling: 5.08'
Total Depth to Well: _____
Well Diameter: 2"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
1115		~200		25.38	3.53	3.73	0.50	356	NTU 295 Cloudy - tan NTU climbing
1120				26.60	3.54	3.86	0.01	329	403 NTU dropping
1125				26.77	3.54	3.87	0.00	326	226
1130				26.88	3.54	3.87	0.00	327	165 clearing
1135				26.99	3.54	3.87	0.00	328	94.1
1140				27.22	3.54	3.86	0.00	328	72.1 clearing
1145				26.25	3.52	3.87	0.00	317	78.6 NTU lowest
1150				25.82	3.51	3.85	0.00	316	76.1 ~75
1155				25.67	3.48	3.82	0.00	320	71.8 very slow to
1200			~4.0	26.08	3.48	3.83	0.00	321	110.1 go lower

→ Sampled @ 1200

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes: NTU climbing after bottoming at 74 NTU
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

Document1

1300 → EQBK/SCM/090717 taken @ 1300

WELL SAMPLING AND/OR DEVELOPMENT RECORD

amec foster wheeler

Well ID: MW-18
Sample ID: _____ Duplicate ID: _____
Sample Depth: _____
Project and Task No.: 670615CC60.004
Project Name: TMP A GC Mine CCR
Date: 9-7-17
Sampled By: SCM
Method of Purging: Low flow sub
Method of Sampling: Low flow sub

Initial Depth to Water: 9.87'
Depth to Water after Sampling: 13.44'
Total Depth to Well: _____
Well Diameter: 4"
1 Casing/Borehole Volume: _____ (Circle one)
4 Casing/Borehole Volumes: _____ (Circle one)
Total Casing/Borehole Volumes Removed: _____

Time	Intake Depth	Rate (ml/min)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Remarks (color, turbidity, and sediment)
									NTU
1335		~150		23.33	6.37	5.10	0.00	-61	5.0 Almost crystal clear mild HC odor
1340				23.40	6.41	5.16	1.51	-64	4.8
1345				24.70	6.44	5.23	1.13	-66	4.8
1350				24.85	6.46	5.23	0.89	-67	4.4
☆ 1355			~1.5	29.95	6.47	5.23	0.71	-66	4.5

→ Sampled @ 1355

pH CALIBRATION (choose two)					Model or Unit No.:
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Field Temperature °C					
Instrument Reading					

SPECIFIC ELECTRICAL CONDUCTANCE (SEC) – CALIBRATION				Model or Unit No.:
KCl Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C		
Field Temperature °C				
Instrument Reading				

ORP/REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION		Notes:
Standard Solution (mV)		Altitude / Salinity %		
Field Temperature °C		Field Temperature °C		
Instrument Reading (mV)		Instrument Reading (mg/L)		
Model or Unit No.:		Model or Unit No.:		

APPENDIX C

Laboratory Analytical Reports

ANALYTICAL SUMMARY REPORT

August 11, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: T16060106 Quote ID: T3094

Project Name: CCRR

Energy Laboratories Inc. College Station TX received the following 5 samples for Texas Municipal Power Agency on 6/21/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
T16060106-001	SSP APMW-1	06/21/16 16:20	06/21/16	Groundwater	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride E300.0 Anions Cations by ICP pH Metals Digestion by EPA 200.2 Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
T16060106-003	SSP MW-2	06/21/16 13:20	06/21/16	Groundwater	Same As Above
T16060106-004	SSP MW-3	06/21/16 10:30	06/21/16	Groundwater	Same As Above
T16060106-005	SSP MW-4	06/21/16 9:10	06/21/16	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 415 Graham Rd., College Station, TX 77845-9660, unless otherwise noted.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: T16060106

Report Date: 08/11/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060106-001
Client Sample ID: SSP APMW-1

Report Date: 08/11/16
Collection Date: 06/21/16 16:20
DateReceived: 06/21/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.8	s.u.	H	0.1		A4500-H B	06/22/16 20:35 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	6950	mg/L		100		A2540 C	06/23/16 14:45 / pwh
MAJOR IONS							
Chloride	1390	mg/L	D	20		E300.0	06/23/16 15:23 / rda
Fluoride	0.2	mg/L		0.1		A4500-F C	06/28/16 11:32 / pwh
Sulfate	2890	mg/L	D	20		E300.0	06/23/16 15:23 / rda
Calcium	659	mg/L	D	2		E200.7	06/24/16 11:12 / jtr
Boron	1.1	mg/L	D	0.5		E200.7	06/24/16 11:12 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	06/29/16 16:06 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 21:34 / eli-b
Barium	0.05	mg/L		0.01		E200.7	06/29/16 05:52 / eli-b
Beryllium	ND	mg/L		0.001		E200.8	06/29/16 16:06 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 05:52 / eli-b
Chromium	ND	mg/L		0.01		E200.8	06/28/16 21:34 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	06/29/16 16:06 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 21:34 / eli-b
Lithium	1.4	mg/L	D	0.02		E200.7	06/29/16 05:52 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 05:52 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 16:06 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 21:34 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:04 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	2.0	pCi/L	U			RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	2.60	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.20	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.57	pCi/L				E903.0	08/02/16 15:31 / jjc
Total Radium as Ra226 precision (±)	0.14	pCi/L				E903.0	08/02/16 15:31 / jjc
Total Radium as Ra226 MDC	0.18	pCi/L				E903.0	08/02/16 15:31 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060106-003
Client Sample ID: SSP MW-2

Report Date: 08/11/16
Collection Date: 06/21/16 13:20
DateReceived: 06/21/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.4	s.u.	H	0.1		A4500-H B	06/22/16 20:44 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	6690	mg/L		100		A2540 C	06/23/16 14:46 / pwh
MAJOR IONS							
Chloride	2070	mg/L	D	20		E300.0	06/23/16 16:02 / rda
Fluoride	0.1	mg/L		0.1		A4500-F C	06/28/16 11:57 / pwh
Sulfate	2030	mg/L	D	20		E300.0	06/23/16 16:02 / rda
Calcium	742	mg/L	D	2		E200.7	06/24/16 11:16 / jtr
Boron	0.8	mg/L	D	0.5		E200.7	06/24/16 11:16 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	06/29/16 16:32 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 21:40 / eli-b
Barium	0.4	mg/L		0.01		E200.7	06/29/16 06:20 / eli-b
Beryllium	0.009	mg/L		0.001		E200.7	06/29/16 06:20 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:20 / eli-b
Chromium	0.04	mg/L		0.01		E200.8	06/28/16 21:40 / eli-b
Cobalt	0.06	mg/L		0.02		E200.8	06/29/16 16:32 / eli-b
Lead	0.02	mg/L		0.01		E200.8	06/28/16 21:40 / eli-b
Lithium	0.9	mg/L	D	0.02		E200.7	06/29/16 06:20 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:20 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 16:32 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 21:40 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:14 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.7	pCi/L	U			RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.4	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	2.79	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.10	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	1.1	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.27	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060106-004
Client Sample ID: SSP MW-3

Report Date: 08/11/16
Collection Date: 06/21/16 10:30
DateReceived: 06/21/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	5.0	s.u.	H	0.1		A4500-H B	06/22/16 20:48 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	6510	mg/L		100		A2540 C	06/23/16 14:47 / pwh
MAJOR IONS							
Chloride	1560	mg/L	D	20		E300.0	06/23/16 16:21 / rda
Fluoride	0.9	mg/L		0.1		A4500-F C	06/28/16 12:05 / pwh
Sulfate	2400	mg/L	D	20		E300.0	06/23/16 16:21 / rda
Calcium	647	mg/L	D	2		E200.7	06/24/16 11:18 / jtr
Boron	3.2	mg/L	D	0.5		E200.7	06/24/16 11:18 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	06/29/16 16:38 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 21:43 / eli-b
Barium	0.03	mg/L		0.01		E200.7	06/29/16 06:23 / eli-b
Beryllium	0.1	mg/L		0.001		E200.7	06/29/16 06:23 / eli-b
Cadmium	0.06	mg/L		0.01		E200.7	06/29/16 06:23 / eli-b
Chromium	ND	mg/L		0.01		E200.8	06/28/16 21:43 / eli-b
Cobalt	0.6	mg/L		0.02		E200.7	06/29/16 06:23 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 21:43 / eli-b
Lithium	0.7	mg/L	D	0.02		E200.7	06/29/16 06:23 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:23 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 16:38 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/29/16 16:38 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:16 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	19	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	3.8	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	24.5	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	3.81	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	5.1	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.66	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.15	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060106-005
Client Sample ID: SSP MW-4

Report Date: 08/11/16
Collection Date: 06/21/16 09:10
DateReceived: 06/21/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	7.2	s.u.	H	0.1		A4500-H B	06/22/16 20:53 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	3940	mg/L		40		A2540 C	06/23/16 14:47 / pwh
MAJOR IONS							
Chloride	1120	mg/L	D	20		E300.0	06/23/16 16:41 / rda
Fluoride	0.1	mg/L		0.1		A4500-F C	06/28/16 12:09 / pwh
Sulfate	1190	mg/L	D	20		E300.0	06/23/16 16:41 / rda
Calcium	399	mg/L		1		E200.7	06/24/16 11:32 / jtr
Boron	1.3	mg/L	D	0.2		E200.7	06/24/16 11:32 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	06/29/16 16:43 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 21:46 / eli-b
Barium	0.06	mg/L		0.01		E200.7	06/29/16 06:27 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	06/29/16 06:27 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:27 / eli-b
Chromium	ND	mg/L		0.01		E200.8	06/28/16 21:46 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	06/29/16 16:43 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 21:46 / eli-b
Lithium	0.9	mg/L	D	0.02		E200.7	06/29/16 06:27 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:27 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 16:43 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 21:46 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:17 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	3.7	pCi/L				RA-05	07/07/16 08:15 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	07/07/16 08:15 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	07/07/16 08:15 / eli-ca
Radium 226 + Radium 228	5.38	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.23	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	1.7	pCi/L				E903.0	08/02/16 15:31 / jjc
Total Radium as Ra226 precision (±)	0.25	pCi/L				E903.0	08/02/16 15:31 / jjc
Total Radium as Ra226 MDC	0.20	pCi/L				E903.0	08/02/16 15:31 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**									Batch: TDS160623A	
Lab ID: **MB-1_160623A**	Method Blank					Run: BAL3_160623A			06/23/16 14:40	
Solids, Total Dissolved TDS @ 180 C		9	mg/L	5						
Lab ID: **LCS-2_160623A**	Laboratory Control Sample					Run: BAL3_160623A			06/23/16 14:40	
Solids, Total Dissolved TDS @ 180 C		1090	mg/L	11	97	90	110			
Lab ID: **T16060098-001A DUP**	Sample Duplicate					Run: BAL3_160623A			06/23/16 14:40	
Solids, Total Dissolved TDS @ 180 C		1250	mg/L	10				0.2	5	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: ATT1_160628A	
Lab ID: **CCV-F2**		Continuing Calibration Verification Standard							06/28/16 12:40	
Fluoride		1.96	mg/L	0.10	98	90	110			
Method: **A4500-F C**									Batch: R68748	
Lab ID: **LCS-F-3733**		Laboratory Control Sample				Run: ATT1_160628A			06/28/16 11:20	
Fluoride		5.05	mg/L	0.10	98	90	110			
Lab ID: **MBLK**		Method Blank				Run: ATT1_160628A			06/28/16 11:27	
Fluoride		0.03	mg/L	0.002						
Lab ID: **T16060106-001AMS**		Sample Matrix Spike				Run: ATT1_160628A			06/28/16 11:35	
Fluoride		5.08	mg/L	0.10	96	90	110			
Lab ID: **T16060106-002ADUP**		Sample Duplicate				Run: ATT1_160628A			06/28/16 11:50	
Fluoride		0.780	mg/L	0.10				5.0	10	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**										Batch: R68678
Lab ID: **ICV1-PH12_3890**	Initial Calibration Verification Standard					Run: ATT1_160622A				06/22/16 17:03
pH		12	s.u.	0.1	99	99	101			
Lab ID: **ICV2-PH2_3594**	Initial Calibration Verification Standard					Run: ATT1_160622A				06/22/16 17:06
pH		2.1	s.u.	0.1	103	95	105			
Lab ID: **ICV/LCS-PH_3840**	Laboratory Control Sample					Run: ATT1_160622A				06/22/16 17:09
pH		7.0	s.u.	0.1	100	98	102			
Lab ID: **T16060108-001ADUP**	Sample Duplicate					Run: ATT1_160622A				06/22/16 17:55
pH		8.0	s.u.	0.1				0.3	3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP102-CS_160624A	
Lab ID:	**Initial Calib Verif**	2	Initial Calibration Verification Standard							06/24/16 10:25	
Boron			1.01	mg/L	0.050	101	95	105			
Calcium			48.0	mg/L	1.0	96	95	105			
Lab ID:	**Cont Calib Blank**	2	Continuing Calibration Blank							06/24/16 10:29	
Boron			0.00796	mg/L	0.050						
Calcium			-0.00125	mg/L	1.0						
Method:	**E200.7**									Batch: R68725	
Lab ID:	**IPC**	2	Initial Precision and Recovery				Run: ICP102-CS_160624A			06/24/16 10:32	
Boron			0.988	mg/L	0.050	99	95	105			
Calcium			47.9	mg/L	1.0	96	95	105			
Lab ID:	**LCS-160624**	2	Laboratory Control Sample				Run: ICP102-CS_160624A			06/24/16 10:42	
Calcium			47.8	mg/L	1.0	95	85	115			
Boron			0.989	mg/L	0.050	98	85	115			
Lab ID:	**MB-160624**	2	Method Blank				Run: ICP102-CS_160624A			06/24/16 10:46	
Calcium			0.08	mg/L	0.08						
Boron			0.006	mg/L	0.001						
Lab ID:	**T16060106-004ASD**	2	Serial Dilution				Run: ICP102-CS_160624A			06/24/16 11:24	
Calcium			696	mg/L	10		0	0	7.3	10	
Boron			3.47	mg/L	2.5		0	0	8.8	10	
Lab ID:	**T16060106-004AMS**	2	Sample Matrix Spike				Run: ICP102-CS_160624A			06/24/16 11:26	
Calcium			1110	mg/L	2.0	93	70	130			
Boron			13.3	mg/L	0.50	101	70	130			
Lab ID:	**T16060106-004AMSD**	2	Sample Matrix Spike Duplicate				Run: ICP102-CS_160624A			06/24/16 11:29	
Calcium			1120	mg/L	2.0	94	70	130	0.4	20	
Boron			13.2	mg/L	0.50	100	70	130	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: SUB-B263043	
Lab ID: ICV	6	Continuing Calibration Verification Standard							06/28/16 13:37	
Barium		2.39	mg/L	0.10	96	95	105			
Beryllium		1.24	mg/L	0.010	99	95	105			
Cadmium		2.43	mg/L	0.010	97	95	105			
Cobalt		2.43	mg/L	0.020	97	95	105			
Lithium		1.23	mg/L	0.10	98	95	105			
Molybdenum		2.43	mg/L	0.10	97	95	105			
Method: E200.7									Batch: B_100369	
Lab ID: MB-100369	6	Method Blank				Run: SUB-B263043			06/29/16 05:44	
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	8E-05						
Cadmium		ND	mg/L	0.0004						
Cobalt		0.005	mg/L	0.002						
Lithium		0.007	mg/L	0.002						
Molybdenum		ND	mg/L	0.003						
Lab ID: LCS-100369	6	Laboratory Control Sample				Run: SUB-B263043			06/29/16 05:48	
Barium		0.500	mg/L	0.10	100	85	115			
Beryllium		0.245	mg/L	0.010	98	85	115			
Cadmium		0.243	mg/L	0.010	97	85	115			
Cobalt		0.496	mg/L	0.050	98	85	115			
Lithium		0.506	mg/L	0.10	100	85	115			
Molybdenum		0.467	mg/L	0.10	93	85	115			
Lab ID: B16062096-001BMS3	6	Sample Matrix Spike				Run: SUB-B263043			06/29/16 06:02	
Barium		0.563	mg/L	0.050	103	70	130			
Beryllium		0.257	mg/L	0.0010	102	70	130			
Cadmium		0.244	mg/L	0.0036	97	70	130			
Cobalt		0.540	mg/L	0.016	100	70	130			
Lithium		1.90	mg/L	0.10	107	70	130			
Molybdenum		0.495	mg/L	0.033	99	70	130			
Lab ID: B16062096-001BMSD	6	Sample Matrix Spike Duplicate				Run: SUB-B263043			06/29/16 06:13	
Barium		0.585	mg/L	0.050	107	70	130	3.9	20	
Beryllium		0.269	mg/L	0.0010	107	70	130	4.8	20	
Cadmium		0.260	mg/L	0.0036	104	70	130	6.6	20	
Cobalt		0.582	mg/L	0.016	108	70	130	7.6	20	
Lithium		1.96	mg/L	0.10	120	70	130	3.4	20	
Molybdenum		0.518	mg/L	0.033	104	70	130	4.5	20	
Lab ID: B16062133-001AMS3	6	Sample Matrix Spike				Run: SUB-B263043			06/29/16 07:26	
Barium		0.675	mg/L	0.050	104	70	130			
Beryllium		0.265	mg/L	0.0010	106	70	130			
Cadmium		0.257	mg/L	0.0010	103	70	130			
Cobalt		0.531	mg/L	0.0050	104	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: B_100369
Lab ID: B16062133-001AMS3	6	Sample Matrix Spike				Run: SUB-B263043				06/29/16 07:26
Lithium		0.635	mg/L	0.10	104	70	130			
Molybdenum		0.493	mg/L	0.0065	99	70	130			
Lab ID: B16062133-001AMSD	6	Sample Matrix Spike Duplicate				Run: SUB-B263043				06/29/16 07:37
Barium		0.667	mg/L	0.050	102	70	130	1.2	20	
Beryllium		0.260	mg/L	0.0010	104	70	130	1.9	20	
Cadmium		0.249	mg/L	0.0010	100	70	130	2.8	20	
Cobalt		0.516	mg/L	0.0050	101	70	130	2.8	20	
Lithium		0.627	mg/L	0.10	103	70	130	1.3	20	
Molybdenum		0.494	mg/L	0.0065	99	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: SUB-B263102	
Lab ID: **QCS**	4	Initial Calibration Verification Standard							06/28/16 20:28	
Arsenic		0.0508	mg/L	0.0050	102	90	110			
Chromium		0.0506	mg/L	0.010	101	90	110			
Lead		0.0499	mg/L	0.010	100	90	110			
Thallium		0.0503	mg/L	0.10	101	90	110			
Method: **E200.8**									Batch: B_100369	
Lab ID: **MB-100369**	7	Method Blank				Run: SUB-B263102			06/28/16 21:31	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Beryllium		ND	mg/L	9E-06						
Chromium		0.0002	mg/L	4E-05						
Lead		0.0001	mg/L	2E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: **LCS-100369**	7	Laboratory Control Sample				Run: SUB-B263102			06/28/16 22:49	
Antimony		0.505	mg/L	0.0050	101	85	115			
Arsenic		0.493	mg/L	0.0010	99	85	115			
Beryllium		0.249	mg/L	0.0010	100	85	115			
Chromium		0.509	mg/L	0.0010	102	85	115			
Lead		0.509	mg/L	0.0010	102	85	115			
Selenium		0.430	mg/L	0.0050	86	85	115			
Thallium		0.439	mg/L	0.0010	88	85	115			
Lab ID: **B16062096-001BMS3**	7	Sample Matrix Spike				Run: SUB-B263102			06/28/16 22:52	
Antimony		0.531	mg/L	0.0010	106	70	130			
Arsenic		0.524	mg/L	0.0010	104	70	130			
Beryllium		0.255	mg/L	0.0010	102	70	130			
Chromium		0.519	mg/L	0.0050	104	70	130			
Lead		0.527	mg/L	0.0010	105	70	130			
Selenium		0.526	mg/L	0.0021	105	70	130			
Thallium		0.519	mg/L	0.00050	104	70	130			
Lab ID: **B16062096-001BMSD**	7	Sample Matrix Spike Duplicate				Run: SUB-B263102			06/28/16 22:55	
Antimony		0.505	mg/L	0.0010	101	70	130	5.1	20	
Arsenic		0.511	mg/L	0.0010	101	70	130	2.6	20	
Beryllium		0.254	mg/L	0.0010	101	70	130	0.6	20	
Chromium		0.510	mg/L	0.0050	102	70	130	1.8	20	
Lead		0.523	mg/L	0.0010	104	70	130	0.7	20	
Selenium		0.555	mg/L	0.0021	111	70	130	5.4	20	
Thallium		0.520	mg/L	0.00050	104	70	130	0.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: SUB-B263148	
Lab ID: QCS	5	Initial Calibration Verification Standard							06/29/16 11:39	
Antimony		0.0508	mg/L	0.050	101	90	110			
Beryllium		0.0252	mg/L	0.0010	101	90	110			
Cobalt		0.0502	mg/L	0.010	100	90	110			
Selenium		0.0512	mg/L	0.0050	102	90	110			
Thallium		0.0488	mg/L	0.10	98	90	110			
Method: E200.8									Batch: B_100369	
Lab ID: MB-100369	8	Method Blank				Run: SUB-B263148			06/29/16 16:00	
Antimony		7E-05	mg/L	4E-05						
Arsenic		7E-05	mg/L	6E-05						
Beryllium		ND	mg/L	6E-06						
Chromium		ND	mg/L	0.0002						
Cobalt		ND	mg/L	1E-05						
Lead		0.0003	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Thallium		2E-05	mg/L	1E-05						
Lab ID: LCS-100369	8	Laboratory Control Sample				Run: SUB-B263148			06/29/16 18:08	
Antimony		0.544	mg/L	0.0050	109	85	115			
Arsenic		0.478	mg/L	0.0010	96	85	115			
Beryllium		0.279	mg/L	0.0010	112	85	115			
Chromium		0.476	mg/L	0.0010	95	85	115			
Cobalt		0.483	mg/L	0.0010	97	85	115			
Lead		0.494	mg/L	0.0010	99	85	115			
Selenium		0.470	mg/L	0.0050	94	85	115			
Thallium		0.470	mg/L	0.0010	94	85	115			
Lab ID: B16062096-001BMS3	8	Sample Matrix Spike				Run: SUB-B263148			06/29/16 18:13	
Antimony		0.534	mg/L	0.0010	107	70	130			
Arsenic		0.501	mg/L	0.0010	99	70	130			
Beryllium		0.269	mg/L	0.0010	107	70	130			
Chromium		0.504	mg/L	0.0050	101	70	130			
Cobalt		0.504	mg/L	0.0050	100	70	130			
Lead		0.511	mg/L	0.0010	102	70	130			
Selenium		0.484	mg/L	0.0012	97	70	130			
Thallium		0.491	mg/L	0.00050	98	70	130			
Lab ID: B16062096-001BMSD	8	Sample Matrix Spike Duplicate				Run: SUB-B263148			06/29/16 18:18	
Antimony		0.526	mg/L	0.0010	105	70	130	1.5	20	
Arsenic		0.502	mg/L	0.0010	100	70	130	0.2	20	
Beryllium		0.275	mg/L	0.0010	109	70	130	2.2	20	
Chromium		0.498	mg/L	0.0050	100	70	130	1.2	20	
Cobalt		0.506	mg/L	0.0050	101	70	130	0.5	20	
Lead		0.522	mg/L	0.0010	104	70	130	2.2	20	
Selenium		0.485	mg/L	0.0012	97	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: B_100369
Lab ID: **B16062096-001BMSD**	8	Sample Matrix Spike Duplicate				Run: SUB-B263148				06/29/16 18:18
Thallium		0.496	mg/L	0.00050	99	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: SUB-B263056	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/28/16 11:45	
Mercury		0.0021	mg/L	0.00010	103	90	110			
Method: **E245.1**									Batch: B_100383	
Lab ID: **MB-100383**		Method Blank				Run: SUB-B263056			06/28/16 11:51	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-100383**		Laboratory Control Sample				Run: SUB-B263056			06/28/16 11:53	
Mercury		0.0022	mg/L	0.00010	109	85	115			
Lab ID: **B16062090-024BMS**		Sample Matrix Spike				Run: SUB-B263056			06/28/16 11:59	
Mercury		0.0021	mg/L	0.00010	107	70	130			
Lab ID: **B16062090-024BMSD**		Sample Matrix Spike Duplicate				Run: SUB-B263056			06/28/16 12:01	
Mercury		0.0022	mg/L	0.00010	109	70	130	1.4	30	
Lab ID: **T16060113-006B**		Sample Matrix Spike				Run: SUB-B263056			06/28/16 12:34	
Mercury		0.0021	mg/L	0.00010	103	70	130			
Lab ID: **T16060113-006B**		Sample Matrix Spike Duplicate				Run: SUB-B263056			06/28/16 12:36	
Mercury		0.0021	mg/L	0.00010	104	70	130	0.7	30	
Method: **E245.1**									Batch: B_100426	
Lab ID: **MB-100426**		Method Blank				Run: SUB-B263056			06/28/16 16:35	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-100426**		Laboratory Control Sample				Run: SUB-B263056			06/28/16 16:37	
Mercury		0.0020	mg/L	0.00010	102	85	115			
Lab ID: **B16061967-001AMS**		Sample Matrix Spike				Run: SUB-B263056			06/28/16 16:41	
Mercury		0.0021	mg/L	0.00010	100	70	130			
Lab ID: **B16061967-001AMSD**		Sample Matrix Spike Duplicate				Run: SUB-B263056			06/28/16 16:43	
Mercury		0.0021	mg/L	0.00010	99	70	130	0.6	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC1_160623A	
Lab ID:	**ICV/LCS-W-3770**	2	Initial Calibration Verification Standard							06/23/16 10:44	
Chloride			98.8	mg/L	2.0	99	90	110			
Sulfate			97.8	mg/L	2.0	98	90	110			
Lab ID:	**ICB2**	2	Initial Calibration Blank, Instrument Blank							06/23/16 12:02	
Chloride			0.269	mg/L	1.0		0	0			
Sulfate			ND	mg/L	1.0		0	0			
Method:	**E300.0**									Batch: R68700	
Lab ID:	**ICB**	2	Method Blank				Run: IC1_160623A			06/23/16 11:04	
Chloride			0.3	mg/L	0.05						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB-3733**	2	Laboratory Fortified Blank				Run: IC1_160623A			06/23/16 11:23	
Chloride			22.8	mg/L	1.0	90	90	110			
Sulfate			23.3	mg/L	1.0	93	90	110			
Lab ID:	**LFBD-3733**	2	Laboratory Fortified Blank Duplicate				Run: IC1_160623A			06/23/16 11:43	
Chloride			23.2	mg/L	1.0	92	90	110	1.8	10	
Sulfate			23.2	mg/L	1.0	93	90	110	0.4	10	
Lab ID:	**T16060107-002AMS**	2	Sample Matrix Spike				Run: IC1_160623A			06/23/16 18:18	
Chloride			191	mg/L	5.0	101	90	110			
Sulfate			181	mg/L	5.0	99	90	110			
Lab ID:	**T16060107-002AMSD**	2	Sample Matrix Spike Duplicate				Run: IC1_160623A			06/23/16 18:38	
Chloride			192	mg/L	5.0	102	90	110	0.6	10	
Sulfate			183	mg/L	5.0	101	90	110	1.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-0136
Lab ID: MB-RA226-0136	3	Method Blank				Run: RAD104-CS_160726A				08/01/16 13:23
Total Radium as Ra226		0.04	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: LCS-RA226-0136		Laboratory Control Sample				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		55	pCi/L		102	80	120			
Lab ID: TapWater1MS		Sample Matrix Spike				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		100	pCi/L		97	70	130			
Lab ID: TapWater1MSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		110	pCi/L		102	70	130	5.4	29.3	
Method: E903.0										Batch: RA226-0137
Lab ID: MB-RA226-0137	3	Method Blank				Run: RAD104-CS_160726B				08/02/16 15:31
Total Radium as Ra226		0.007	pCi/L							U
Total Radium as Ra226 precision (±)		0.02	pCi/L							
Total Radium as Ra226 MDC		0.03	pCi/L							
Lab ID: LCS-RA226-0137		Laboratory Control Sample				Run: RAD104-CS_160726B				08/02/16 15:31
Radium 226		51	pCi/L		96	80	120			
Lab ID: TapWater1MS		Sample Matrix Spike				Run: RAD104-CS_160726B				08/02/16 15:31
Radium 226		96	pCi/L		90	70	130			
Lab ID: TapWater1MSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160726B				08/02/16 15:31
Radium 226		94	pCi/L		88	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060106

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: C_RA228-5258
Lab ID: **LCS-228-RA226-8159**		Laboratory Control Sample				Run: SUB-C213222				07/07/16 08:15
Radium 228		7.4	pCi/L		102	80	120			
Lab ID: **MB-RA226-8159**	3	Method Blank				Run: SUB-C213222				07/07/16 08:15
Radium 228		0.5	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C16060931-005CMS**		Sample Matrix Spike				Run: SUB-C213222				07/07/16 12:12
Radium 228		19	pCi/L		98	70	130			
Lab ID: **C16060931-005CMSD**		Sample Matrix Spike Duplicate				Run: SUB-C213222				07/07/16 12:12
Radium 228		22	pCi/L		115	70	130	14	55.1	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

Workorder	Sample	Recovery	
T16060106			
	T16060106-001C	100.53%	Ra-228
	T16060106-001C	102.52%	Ra-226
	T16060106-002C	107.64%	Ra-228
	T16060106-002C	108.74%	Ra-226
	T16060106-003C	90.05%	Ra-228
	T16060106-003C	92.43%	Ra-226
	T16060106-004C	103.73%	Ra-228
	T16060106-004C	107.38%	Ra-226
	T16060106-005C	103.30%	Ra-228
	T16060106-005C	105.51%	Ra-226

Work Order Receipt Checklist

Texas Municipal Power Agency T16060106

Login completed by: Alisha D. Griffin
Date Received: 6/21/2016
Reviewed by: BL2000\ssuchar
Received by: trr
Reviewed Date: 6/24/2016
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	13.2°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

pH check of applicable preserved fractions acceptable (Lot#3633). Sample 004, COC and Sample Container have different collection times. Per Protocol, logging in per earliest collection time (listed on COC). Only 1-2L received for C fraction on all samples. Receipt temperature checked with IR3: read temperature = 10.3°C; corrected temperature = 13.2°C. ADG 160622 12:46

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page ____ of ____

PLEASE PRINT (Provide as much information as possible.)

Company Name: Amec Foster Wheeler/TMPA	Project Name, PWS, Permit, Etc. Marriss Barney	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address:	Contact Name: Phone/Fax:	Email:	Sampler: (Please Print) DBH/SM
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 3094

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: ______ ☐ Other: ______

☐ EDD/EDT (Electronic Data) Format: ______ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

R U S H — Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: IR3 F 10.3 CT=13.2 TR

T16060106

#	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Sch 1+2	Standard Turnaround (TAT)	Lab ID
1	SSP AP MW-1	6/21/16	1620	GW	X	X	-001
2	SSP MW-1	↓	1500	↓	X	X	-002
3	SSP MW-2	↓	1320	↓	X	X	-003
4	SSP MW-3	↓	1030	↓	X	X	-004
5	SSP MW-4	↓	910	↓	X	X	-005
6							
7							
8							
9							
10							

LABORATORY USE ONLY

Shipped by: Hand

Cooler ID(s): —

Receipt Temp: ~~10.4~~ °C TR 160622 FF melted

On Ice: (Y) N

Custody Seal On Bottle Y (N); On Cooler Y N

Intact Y N

Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
[signature]	6/21/16 5:25pm				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: J Woodford	6/21/16 1725	[signature]

Sample Disposal: Return to Client: ______ Lab Disposal: ______

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

August 11, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: T16060113 Quote ID: T3094

Project Name: CCRR

Energy Laboratories Inc. College Station TX received the following 7 samples for Texas Municipal Power Agency on 6/22/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
T16060113-002	AP MW-4	06/22/16 10:22	06/22/16	Groundwater	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride E300.0 Anions Cations by ICP pH Metals Digestion by EPA 200.2 Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
T16060113-003	AP MW-5	06/22/16 12:10	06/22/16	Groundwater	Same As Above
T16060113-004	AP MW-1D	06/22/16 14:40	06/22/16	Groundwater	Same As Above
T16060113-005	AP MW-3	06/22/16 16:02	06/22/16	Groundwater	Same As Above
T16060113-006	Dup-1	06/22/16 12:00	06/22/16	Groundwater	Same As Above
T16060113-007	EQ-Blank-1	06/22/16 15:25	06/22/16	Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 415 Graham Rd., College Station, TX 77845-9660, unless otherwise noted.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: T16060113

Report Date: 08/11/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060113-002
Client Sample ID: AP MW-4

Report Date: 08/11/16
Collection Date: 06/22/16 10:22
DateReceived: 06/22/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	06/23/16 17:59 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	4130	mg/L		40		A2540 C	06/23/16 15:08 / jjc
MAJOR IONS							
Chloride	485	mg/L	D	20		E300.0	06/24/16 01:06 / rda
Fluoride	0.1	mg/L		0.1		A4500-F C	06/28/16 12:20 / pwh
Sulfate	2210	mg/L	D	20		E300.0	06/24/16 01:06 / rda
Calcium	497	mg/L		1		E200.7	06/24/16 12:18 / jtr
Boron	2.0	mg/L	D	0.2		E200.7	06/24/16 12:18 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	06/29/16 16:53 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 22:01 / eli-b
Barium	0.02	mg/L		0.01		E200.7	06/29/16 06:34 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	06/29/16 06:34 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:34 / eli-b
Chromium	ND	mg/L		0.01		E200.8	06/28/16 22:01 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	06/29/16 16:53 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 22:01 / eli-b
Lithium	1	mg/L		0.01		E200.7	06/29/16 06:34 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:34 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 16:53 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 22:01 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:21 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.4	pCi/L	U			RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	1.98	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.04	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.53	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.18	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.15	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060113-003
Client Sample ID: AP MW-5

Report Date: 08/11/16
Collection Date: 06/22/16 12:10
DateReceived: 06/22/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	3.8	s.u.	H	0.1		A4500-H B	06/23/16 18:02 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	4170	mg/L		40		A2540 C	06/23/16 15:10 / jjc
MAJOR IONS							
Chloride	410	mg/L	D	20		E300.0	06/24/16 01:26 / rda
Fluoride	1.5	mg/L		0.1		A4500-F C	06/28/16 12:27 / pwh
Sulfate	2640	mg/L	D	20		E300.0	06/24/16 01:26 / rda
Calcium	387	mg/L		1		E200.7	06/24/16 12:20 / jtr
Boron	3.3	mg/L	D	0.2		E200.7	06/24/16 12:20 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	06/29/16 16:59 / eli-b
Arsenic	0.02	mg/L		0.01		E200.8	06/28/16 22:04 / eli-b
Barium	0.01	mg/L		0.01		E200.7	06/29/16 06:37 / eli-b
Beryllium	0.08	mg/L		0.001		E200.7	06/29/16 06:37 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:37 / eli-b
Chromium	ND	mg/L		0.01		E200.8	06/28/16 22:04 / eli-b
Cobalt	0.1	mg/L		0.02		E200.8	06/29/16 16:59 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 22:04 / eli-b
Lithium	0.5	mg/L		0.01		E200.7	06/29/16 06:37 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:37 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 16:59 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 22:04 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:27 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	2.6	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	4.55	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.60	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	1.9	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.35	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.15	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060113-004
Client Sample ID: AP MW-1D

Report Date: 08/11/16
Collection Date: 06/22/16 14:40
DateReceived: 06/22/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	06/23/16 18:07 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	1490	mg/L		20		A2540 C	06/23/16 15:10 / jjc
MAJOR IONS							
Chloride	227	mg/L	D	10		E300.0	06/24/16 01:45 / rda
Fluoride	0.6	mg/L		0.1		A4500-F C	06/28/16 12:32 / pwh
Sulfate	664	mg/L	D	10		E300.0	06/24/16 01:45 / rda
Calcium	88	mg/L		1		E200.7	06/24/16 12:23 / jtr
Boron	4.9	mg/L	D	0.1		E200.7	06/24/16 12:23 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	06/29/16 17:04 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 22:07 / eli-b
Barium	0.02	mg/L		0.01		E200.7	06/29/16 06:41 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	06/29/16 06:41 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:41 / eli-b
Chromium	ND	mg/L		0.01		E200.8	06/28/16 22:07 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	06/29/16 17:04 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 22:07 / eli-b
Lithium	0.07	mg/L		0.01		E200.7	06/29/16 06:41 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:41 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 17:04 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 22:07 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:29 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.6	pCi/L	U			RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	2.07	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.08	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.48	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.19	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060113-005
Client Sample ID: AP MW-3

Report Date: 08/11/16
Collection Date: 06/22/16 16:02
DateReceived: 06/22/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	06/23/16 18:11 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	1390	mg/L		10		A2540 C	06/23/16 15:11 / jjc
MAJOR IONS							
Chloride	129	mg/L	D	10		E300.0	06/24/16 02:05 / rda
Fluoride	0.2	mg/L		0.1		A4500-F C	06/28/16 12:37 / pwh
Sulfate	700	mg/L	D	10		E300.0	06/24/16 02:05 / rda
Calcium	138	mg/L		1		E200.7	06/24/16 12:27 / jtr
Boron	3.7	mg/L	D	0.1		E200.7	06/24/16 12:27 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	06/29/16 06:44 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 22:10 / eli-b
Barium	0.04	mg/L		0.01		E200.7	06/29/16 06:44 / eli-b
Beryllium	0.002	mg/L		0.001		E200.7	06/29/16 06:44 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:44 / eli-b
Chromium	ND	mg/L		0.01		E200.7	06/29/16 06:44 / eli-b
Cobalt	0.05	mg/L		0.02		E200.8	06/29/16 17:09 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 22:10 / eli-b
Lithium	0.06	mg/L		0.01		E200.7	06/29/16 06:44 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:44 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 17:09 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 22:10 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:31 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	0.47	pCi/L	U			RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	1.11	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.28	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.64	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.21	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.16	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060113-006
Client Sample ID: Dup-1

Report Date: 08/11/16
Collection Date: 06/22/16 12:00
DateReceived: 06/22/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	06/23/16 18:15 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	1460	mg/L		20		A2540 C	06/23/16 15:11 / jjc
MAJOR IONS							
Chloride	218	mg/L	D	10		E300.0	06/24/16 13:43 / rda
Fluoride	0.6	mg/L		0.1		A4500-F C	06/28/16 12:44 / pwh
Sulfate	642	mg/L	D	10		E300.0	06/24/16 13:43 / rda
Calcium	88	mg/L		1		E200.7	06/24/16 12:40 / jtr
Boron	4.8	mg/L	D	0.1		E200.7	06/24/16 12:40 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	06/29/16 06:55 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 22:13 / eli-b
Barium	0.02	mg/L		0.01		E200.7	06/29/16 06:55 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	06/29/16 06:55 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:55 / eli-b
Chromium	ND	mg/L		0.01		E200.7	06/29/16 06:55 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	06/29/16 17:14 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 22:13 / eli-b
Lithium	0.05	mg/L		0.01		E200.7	06/29/16 06:55 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:55 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 17:14 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 22:13 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:33 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	2.9	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	3.40	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.34	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.48	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.19	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060113-007
Client Sample ID: EQ-Blank-1

Report Date: 08/11/16
Collection Date: 06/22/16 15:25
DateReceived: 06/22/16
Matrix: Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	5.7	s.u.	H	0.1		A4500-H B	06/23/16 18:20 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/24/16 14:46 / adg
MAJOR IONS							
Chloride	ND	mg/L		1		E300.0	06/24/16 14:21 / rda
Fluoride	ND	mg/L		0.1		A4500-F C	06/28/16 12:56 / pwh
Sulfate	ND	mg/L		1		E300.0	06/24/16 14:21 / rda
Calcium	ND	mg/L		1		E200.7	06/24/16 12:48 / jtr
Boron	ND	mg/L		0.05		E200.7	06/24/16 12:48 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	06/29/16 06:59 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	06/28/16 22:16 / eli-b
Barium	ND	mg/L		0.01		E200.7	06/29/16 06:59 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	06/29/16 06:59 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	06/29/16 06:59 / eli-b
Chromium	ND	mg/L		0.01		E200.8	06/28/16 22:16 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	06/29/16 17:36 / eli-b
Lead	ND	mg/L		0.01		E200.8	06/28/16 22:16 / eli-b
Lithium	0.01	mg/L		0.01		E200.7	06/29/16 06:59 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	06/29/16 06:59 / eli-b
Selenium	ND	mg/L		0.01		E200.8	06/29/16 17:36 / eli-b
Thallium	ND	mg/L		0.01		E200.8	06/28/16 22:16 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	06/28/16 12:38 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	2.1	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	07/07/16 12:12 / eli-ca
Radium 226 + Radium 228	2.36	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.38	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.26	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 precision (±)	0.15	pCi/L				E903.0	08/01/16 13:23 / sas
Total Radium as Ra226 MDC	0.16	pCi/L				E903.0	08/01/16 13:23 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: TDS160623B
Lab ID: **MB-1_160623B**	Method Blank					Run: BAL3_160623E				06/23/16 15:06
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: **LCS-2_160623B**	Laboratory Control Sample					Run: BAL3_160623E				06/23/16 15:06
Solids, Total Dissolved TDS @ 180 C		1000	mg/L	10	100	90	110			
Lab ID: **T16060113-004A DUP**	Sample Duplicate					Run: BAL3_160623E				06/23/16 15:10
Solids, Total Dissolved TDS @ 180 C		1470	mg/L	20				1.1	5	
Method: **A2540 C**										Batch: TDS160624A
Lab ID: **MB-1_160624A**	Method Blank					Run: BAL3_160624A				06/24/16 14:44
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: **LCS-2_160624A**	Laboratory Control Sample					Run: BAL3_160624A				06/24/16 14:45
Solids, Total Dissolved TDS @ 180 C		983	mg/L	10	98	90	110			
Lab ID: **T16060097-005A DUP**	Sample Duplicate					Run: BAL3_160624A				06/24/16 14:46
Solids, Total Dissolved TDS @ 180 C		2670	mg/L	20				1.0	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: ATT1_160628A	
Lab ID: **CCV-F2**		Continuing Calibration Verification Standard							06/28/16 12:40	
Fluoride		1.96	mg/L	0.10	98	90	110			
Method: **A4500-F C**									Batch: R68748	
Lab ID: **LCS-F-3733**		Laboratory Control Sample				Run: ATT1_160628A			06/28/16 11:20	
Fluoride		5.05	mg/L	0.10	98	90	110			
Lab ID: **MBLK**		Method Blank				Run: ATT1_160628A			06/28/16 11:27	
Fluoride		0.03	mg/L	0.002						
Lab ID: **T16060106-001AMS**		Sample Matrix Spike				Run: ATT1_160628A			06/28/16 11:35	
Fluoride		5.08	mg/L	0.10	96	90	110			
Lab ID: **T16060113-006ADUP**		Sample Duplicate				Run: ATT1_160628A			06/28/16 12:49	
Fluoride		0.560	mg/L	0.10				0.0	10	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: ATT1_160623A	
Lab ID: **ICV/LCS-PH-3840**	Initial Calibration Verification Standard								06/23/16 14:49	
pH		7.0	s.u.	0.1	100	98	102			
Method: **A4500-H B**									Batch: R68708	
Lab ID: **ICV1-PH12_3890**	Initial Calibration Verification Standard					Run: ATT1_160623A			06/23/16 14:33	
pH		12	s.u.	0.1	99	99	101			
Lab ID: **ICV2-PH2_3594**	Initial Calibration Verification Standard					Run: ATT1_160623A			06/23/16 14:45	
pH		2.1	s.u.	0.1	104	95	105			
Lab ID: **T16060113-001ADUP**	Sample Duplicate					Run: ATT1_160623A			06/23/16 17:54	
pH		4.6	s.u.	0.1				1.1	3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP102-CS_160624A	
Lab ID:	**Initial Calib Verif**	2	Initial Calibration Verification Standard							06/24/16 10:25	
Boron			1.01	mg/L	0.050	101	95	105			
Calcium			48.0	mg/L	1.0	96	95	105			
Lab ID:	**Cont Calib Blank**	2	Continuing Calibration Blank							06/24/16 10:29	
Boron			0.00796	mg/L	0.050						
Calcium			-0.00125	mg/L	1.0						
Method:	**E200.7**									Batch: R68725	
Lab ID:	**IPC**	2	Initial Precision and Recovery				Run: ICP102-CS_160624A			06/24/16 10:32	
Boron			0.988	mg/L	0.050	99	95	105			
Calcium			47.9	mg/L	1.0	96	95	105			
Lab ID:	**LCS-160624**	2	Laboratory Control Sample				Run: ICP102-CS_160624A			06/24/16 10:42	
Calcium			47.8	mg/L	1.0	95	85	115			
Boron			0.989	mg/L	0.050	98	85	115			
Lab ID:	**MB-160624**	2	Method Blank				Run: ICP102-CS_160624A			06/24/16 10:46	
Calcium			0.08	mg/L	0.08						
Boron			0.006	mg/L	0.001						
Lab ID:	**T16060113-005ASD**	2	Serial Dilution				Run: ICP102-CS_160624A			06/24/16 12:30	
Calcium			145	mg/L	2.0		0	0	4.9	10	
Boron			3.64	mg/L	0.50		0	0	1.8	10	
Lab ID:	**T16060113-005AMS**	2	Sample Matrix Spike				Run: ICP102-CS_160624A			06/24/16 12:32	
Calcium			224	mg/L	1.0	87	70	130			
Boron			5.61	mg/L	0.10	95	70	130			
Lab ID:	**T16060113-005AMSD**	2	Sample Matrix Spike Duplicate				Run: ICP102-CS_160624A			06/24/16 12:36	
Calcium			228	mg/L	1.0	91	70	130	1.7	20	
Boron			5.67	mg/L	0.10	98	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: SUB-B263043	
Lab ID: ICV	7	Continuing Calibration Verification Standard							06/28/16 13:37	
Antimony		2.43	mg/L	0.050	97	95	105			
Barium		2.39	mg/L	0.10	96	95	105			
Beryllium		1.24	mg/L	0.010	99	95	105			
Cadmium		2.43	mg/L	0.010	97	95	105			
Chromium		2.40	mg/L	0.050	96	95	105			
Lithium		1.23	mg/L	0.10	98	95	105			
Molybdenum		2.43	mg/L	0.10	97	95	105			
Method: E200.7									Batch: B_100369	
Lab ID: MB-100369	7	Method Blank				Run: SUB-B263043			06/29/16 05:44	
Antimony		ND	mg/L	0.01						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	8E-05						
Cadmium		ND	mg/L	0.0004						
Chromium		ND	mg/L	0.003						
Lithium		0.007	mg/L	0.002						
Molybdenum		ND	mg/L	0.003						
Lab ID: LCS-100369	7	Laboratory Control Sample				Run: SUB-B263043			06/29/16 05:48	
Antimony		0.495	mg/L	0.10	99	85	115			
Barium		0.500	mg/L	0.10	100	85	115			
Beryllium		0.245	mg/L	0.010	98	85	115			
Cadmium		0.243	mg/L	0.010	97	85	115			
Chromium		0.490	mg/L	0.050	98	85	115			
Lithium		0.506	mg/L	0.10	100	85	115			
Molybdenum		0.467	mg/L	0.10	93	85	115			
Lab ID: B16062096-001BMS3	7	Sample Matrix Spike				Run: SUB-B263043			06/29/16 06:02	
Antimony		0.477	mg/L	0.13	95	70	130			
Barium		0.563	mg/L	0.050	103	70	130			
Beryllium		0.257	mg/L	0.0010	102	70	130			
Cadmium		0.244	mg/L	0.0036	97	70	130			
Chromium		0.470	mg/L	0.032	94	70	130			
Lithium		1.90	mg/L	0.10	107	70	130			
Molybdenum		0.495	mg/L	0.033	99	70	130			
Lab ID: B16062096-001BMSD	7	Sample Matrix Spike Duplicate				Run: SUB-B263043			06/29/16 06:13	
Antimony		0.388	mg/L	0.13	78	70	130	21	20	R
Barium		0.585	mg/L	0.050	107	70	130	3.9	20	
Beryllium		0.269	mg/L	0.0010	107	70	130	4.8	20	
Cadmium		0.260	mg/L	0.0036	104	70	130	6.6	20	
Chromium		0.491	mg/L	0.032	98	70	130	4.4	20	
Lithium		1.96	mg/L	0.10	120	70	130	3.4	20	
Molybdenum		0.518	mg/L	0.033	104	70	130	4.5	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: B_100369
Lab ID: B16062133-001AMS3	7	Sample Matrix Spike				Run: SUB-B263043				06/29/16 07:26
Antimony		0.464	mg/L	0.025	93	70	130			
Barium		0.675	mg/L	0.050	104	70	130			
Beryllium		0.265	mg/L	0.0010	106	70	130			
Cadmium		0.257	mg/L	0.0010	103	70	130			
Chromium		0.507	mg/L	0.0064	101	70	130			
Lithium		0.635	mg/L	0.10	104	70	130			
Molybdenum		0.493	mg/L	0.0065	99	70	130			
Lab ID: B16062133-001AMSD	7	Sample Matrix Spike Duplicate				Run: SUB-B263043				06/29/16 07:37
Antimony		0.476	mg/L	0.025	95	70	130	2.5	20	
Barium		0.667	mg/L	0.050	102	70	130	1.2	20	
Beryllium		0.260	mg/L	0.0010	104	70	130	1.9	20	
Cadmium		0.249	mg/L	0.0010	100	70	130	2.8	20	
Chromium		0.498	mg/L	0.0064	100	70	130	1.9	20	
Lithium		0.627	mg/L	0.10	103	70	130	1.3	20	
Molybdenum		0.494	mg/L	0.0065	99	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: SUB-B263102	
Lab ID: **QCS**	4	Initial Calibration Verification Standard							06/28/16 20:28	
Arsenic		0.0508	mg/L	0.0050	102	90	110			
Chromium		0.0506	mg/L	0.010	101	90	110			
Lead		0.0499	mg/L	0.010	100	90	110			
Thallium		0.0503	mg/L	0.10	101	90	110			
Method: **E200.8**									Batch: B_100369	
Lab ID: **MB-100369**	6	Method Blank				Run: SUB-B263102			06/28/16 21:31	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Chromium		0.0002	mg/L	4E-05						
Lead		0.0001	mg/L	2E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: **LCS-100369**	6	Laboratory Control Sample				Run: SUB-B263102			06/28/16 22:49	
Antimony		0.505	mg/L	0.0050	101	85	115			
Arsenic		0.493	mg/L	0.0010	99	85	115			
Chromium		0.509	mg/L	0.0010	102	85	115			
Lead		0.509	mg/L	0.0010	102	85	115			
Selenium		0.430	mg/L	0.0050	86	85	115			
Thallium		0.439	mg/L	0.0010	88	85	115			
Lab ID: **B16062096-001BMS3**	6	Sample Matrix Spike				Run: SUB-B263102			06/28/16 22:52	
Antimony		0.531	mg/L	0.0010	106	70	130			
Arsenic		0.524	mg/L	0.0010	104	70	130			
Chromium		0.519	mg/L	0.0050	104	70	130			
Lead		0.527	mg/L	0.0010	105	70	130			
Selenium		0.526	mg/L	0.0021	105	70	130			
Thallium		0.519	mg/L	0.00050	104	70	130			
Lab ID: **B16062096-001BMSD**	6	Sample Matrix Spike Duplicate				Run: SUB-B263102			06/28/16 22:55	
Antimony		0.505	mg/L	0.0010	101	70	130	5.1	20	
Arsenic		0.511	mg/L	0.0010	101	70	130	2.6	20	
Chromium		0.510	mg/L	0.0050	102	70	130	1.8	20	
Lead		0.523	mg/L	0.0010	104	70	130	0.7	20	
Selenium		0.555	mg/L	0.0021	111	70	130	5.4	20	
Thallium		0.520	mg/L	0.00050	104	70	130	0.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: SUB-B263148	
Lab ID: QCS	3	Initial Calibration Verification Standard							06/29/16 11:39	
Antimony		0.0508	mg/L	0.050	101	90	110			
Cobalt		0.0502	mg/L	0.010	100	90	110			
Selenium		0.0512	mg/L	0.0050	102	90	110			
Method: E200.8									Batch: B_100369	
Lab ID: MB-100369	7	Method Blank				Run: SUB-B263148			06/29/16 16:00	
Antimony		7E-05	mg/L	4E-05						
Arsenic		7E-05	mg/L	6E-05						
Chromium		ND	mg/L	0.0002						
Cobalt		ND	mg/L	1E-05						
Lead		0.0003	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Thallium		2E-05	mg/L	1E-05						
Lab ID: LCS-100369	7	Laboratory Control Sample				Run: SUB-B263148			06/29/16 18:08	
Antimony		0.544	mg/L	0.0050	109	85	115			
Arsenic		0.478	mg/L	0.0010	96	85	115			
Chromium		0.476	mg/L	0.0010	95	85	115			
Cobalt		0.483	mg/L	0.0010	97	85	115			
Lead		0.494	mg/L	0.0010	99	85	115			
Selenium		0.470	mg/L	0.0050	94	85	115			
Thallium		0.470	mg/L	0.0010	94	85	115			
Lab ID: B16062096-001BMS3	7	Sample Matrix Spike				Run: SUB-B263148			06/29/16 18:13	
Antimony		0.534	mg/L	0.0010	107	70	130			
Arsenic		0.501	mg/L	0.0010	99	70	130			
Chromium		0.504	mg/L	0.0050	101	70	130			
Cobalt		0.504	mg/L	0.0050	100	70	130			
Lead		0.511	mg/L	0.0010	102	70	130			
Selenium		0.484	mg/L	0.0012	97	70	130			
Thallium		0.491	mg/L	0.00050	98	70	130			
Lab ID: B16062096-001BMSD	7	Sample Matrix Spike Duplicate				Run: SUB-B263148			06/29/16 18:18	
Antimony		0.526	mg/L	0.0010	105	70	130	1.5	20	
Arsenic		0.502	mg/L	0.0010	100	70	130	0.2	20	
Chromium		0.498	mg/L	0.0050	100	70	130	1.2	20	
Cobalt		0.506	mg/L	0.0050	101	70	130	0.5	20	
Lead		0.522	mg/L	0.0010	104	70	130	2.2	20	
Selenium		0.485	mg/L	0.0012	97	70	130	0.1	20	
Thallium		0.496	mg/L	0.00050	99	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: SUB-B263056	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/28/16 11:45	
Mercury		0.0021	mg/L	0.00010	103	90	110			
Method: **E245.1**									Batch: B_100383	
Lab ID: **MB-100383**		Method Blank				Run: SUB-B263056			06/28/16 11:51	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-100383**		Laboratory Control Sample				Run: SUB-B263056			06/28/16 11:53	
Mercury		0.0022	mg/L	0.00010	109	85	115			
Lab ID: **B16062090-024BMS**		Sample Matrix Spike				Run: SUB-B263056			06/28/16 11:59	
Mercury		0.0021	mg/L	0.00010	107	70	130			
Lab ID: **B16062090-024BMSD**		Sample Matrix Spike Duplicate				Run: SUB-B263056			06/28/16 12:01	
Mercury		0.0022	mg/L	0.00010	109	70	130	1.4	30	
Lab ID: **T16060113-006B**		Sample Matrix Spike				Run: SUB-B263056			06/28/16 12:34	
Mercury		0.0021	mg/L	0.00010	103	70	130			
Lab ID: **T16060113-006B**		Sample Matrix Spike Duplicate				Run: SUB-B263056			06/28/16 12:36	
Mercury		0.0021	mg/L	0.00010	104	70	130	0.7	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC1_160623A	
Lab ID: ICV/LCS-W-3770	2	Initial Calibration Verification Standard							06/23/16 10:44	
Chloride		98.8	mg/L	2.0	99	90	110			
Sulfate		97.8	mg/L	2.0	98	90	110			
Lab ID: ICB2	2	Initial Calibration Blank, Instrument Blank							06/23/16 12:02	
Chloride		0.269	mg/L	1.0		0	0			
Sulfate		ND	mg/L	1.0		0	0			
Method: E300.0									Batch: R68700	
Lab ID: ICB	2	Method Blank				Run: IC1_160623A			06/23/16 11:04	
Chloride		0.3	mg/L	0.05						
Sulfate		ND	mg/L	0.03						
Lab ID: LFB-3733	2	Laboratory Fortified Blank				Run: IC1_160623A			06/23/16 11:23	
Chloride		22.8	mg/L	1.0	90	90	110			
Sulfate		23.3	mg/L	1.0	93	90	110			
Lab ID: LFBD-3733	2	Laboratory Fortified Blank Duplicate				Run: IC1_160623A			06/23/16 11:43	
Chloride		23.2	mg/L	1.0	92	90	110	1.8	10	
Sulfate		23.2	mg/L	1.0	93	90	110	0.4	10	
Lab ID: T16060109-004AMS	2	Sample Matrix Spike				Run: IC1_160623A			06/23/16 22:50	
Chloride		511	mg/L	10	109	90	110			
Sulfate		1640	mg/L	10		90	110			AE
- Low spike recovery due to matrix interference										
Lab ID: T16060109-004AMSD	2	Sample Matrix Spike Duplicate				Run: IC1_160623A			06/23/16 23:10	
Chloride		492	mg/L	10	102	90	110	3.6	10	
Sulfate		1580	mg/L	10		90	110	3.6	10	AE
- Low spike recovery due to matrix interference										

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC1_160624A	
Lab ID:	**ICV/LCS-W-3770**	2	Initial Calibration Verification Standard							06/24/16 10:44	
Chloride			96.9	mg/L	2.0	97	90	110			
Sulfate			95.5	mg/L	2.0	96	90	110			
Method:	**E300.0**									Batch: R68710	
Lab ID:	**ICB**	2	Method Blank				Run: IC1_160624A			06/24/16 11:03	
Chloride			0.3	mg/L	0.05						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB-3733**	2	Laboratory Fortified Blank				Run: IC1_160624A			06/24/16 11:22	
Chloride			23.1	mg/L	1.0	91	90	110			
Sulfate			23.2	mg/L	1.0	93	90	110			
Lab ID:	**T16060118-001AMS**	2	Sample Matrix Spike				Run: IC1_160624A			06/24/16 12:01	
Chloride			1610	mg/L	50	97	90	110			
Sulfate			4300	mg/L	50	91	90	110			
Lab ID:	**T16060118-001AMSD**	2	Sample Matrix Spike Duplicate				Run: IC1_160624A			06/24/16 12:21	
Chloride			1610	mg/L	50	97	90	110	0.0	10	
Sulfate			4290	mg/L	50	90	90	110	0.3	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-0136
Lab ID: MB-RA226-0136	3	Method Blank				Run: RAD104-CS_160726A				08/01/16 13:23
Total Radium as Ra226		0.04	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: LCS-RA226-0136		Laboratory Control Sample				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		55	pCi/L		102	80	120			
Lab ID: TapWater1MS		Sample Matrix Spike				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		100	pCi/L		97	70	130			
Lab ID: TapWater1MSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		110	pCi/L		102	70	130	5.4	29.3	
Method: E903.0										Batch: RA226-0137
Lab ID: MB-RA226-0137	3	Method Blank				Run: RAD104-CS_160726B				08/02/16 15:31
Total Radium as Ra226		0.007	pCi/L							U
Total Radium as Ra226 precision (±)		0.02	pCi/L							
Total Radium as Ra226 MDC		0.03	pCi/L							
Lab ID: LCS-RA226-0137		Laboratory Control Sample				Run: RAD104-CS_160726B				08/02/16 15:31
Total Radium as Ra226		51	pCi/L		0	80	120			
Lab ID: TapWater1MS		Sample Matrix Spike				Run: RAD104-CS_160726B				08/02/16 15:31
Total Radium as Ra226		96	pCi/L		0	70	130			
Lab ID: TapWater1MSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160726B				08/02/16 15:31
Total Radium as Ra226		94	pCi/L		0	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060113

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: C_RA228-5258
Lab ID: **LCS-228-RA226-8159**		Laboratory Control Sample				Run: SUB-C213222				07/07/16 08:15
Radium 228		7.4	pCi/L		102	80	120			
Lab ID: **MB-RA226-8159**	3	Method Blank				Run: SUB-C213222				07/07/16 08:15
Radium 228		0.5	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C16060931-005CMS**		Sample Matrix Spike				Run: SUB-C213222				07/07/16 12:12
Radium 228		19	pCi/L		98	70	130			
Lab ID: **C16060931-005CMSD**		Sample Matrix Spike Duplicate				Run: SUB-C213222				07/07/16 12:12
Radium 228		22	pCi/L		115	70	130	14	55.1	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

Workorder	Sample	Recovery	
T16060113			
	T16060113-001C	100.58%	Ra-228
	T16060113-001C	101.07%	Ra-226
	T16060113-002C	101.42%	Ra-228
	T16060113-002C	104.08%	Ra-226
	T16060113-003C	124.00%	Ra-228
	T16060113-003C	126.64%	Ra-226
	T16060113-004C	94.96%	Ra-228
	T16060113-004C	96.98%	Ra-226
	T16060113-005C	101.74%	Ra-228
	T16060113-005C	103.91%	Ra-226
	T16060113-006C	96.35%	Ra-228
	T16060113-006C	98.40%	Ra-226
	T16060113-007C	101.04%	Ra-228
	T16060113-007C	103.20%	Ra-226

Work Order Receipt Checklist

Texas Municipal Power Agency T16060113

Login completed by:	Alisha D. Griffin	Date Received:	6/22/2016
Reviewed by:	BL2000\ssuchar	Received by:	trr
Reviewed Date:	6/24/2016	Carrier name:	Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	16.2°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

pH check of applicable preserved fractions acceptable (Lot#3633). Sample -002 and -007 collection times different from the container to COC. Per protocol, logging in per earliest collection time (listed on bottle). Receipt temperature checked with IR3: read temperature = 13.3°C; corrected temperature = 16.2°C. ADG 160623 09:00

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: AMEC FW / TMPA	Project Name, PWS, Permit, Etc.	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address:	Contact Name: Morriss Barney / Phone/Fax:	Email:	Sampler: (Please Print) PBH / SM
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: ____
☐ Other: ____

☐ EDD/EDT (Electronic Data)
Format: ____
☐ LEVEL IV
☐ NELAC

ANALYSIS REQUESTED: Schedule 1+2 — SEE ATTACHED

Number of Containers; Sample Type: A W S V B O DW — Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

Standard Turnaround (TAT)

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: IR3 corrected temp=11.2

T16060113

#	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Schedule 1+2	Lab ID
1	AP MW-2	6-22-16	0912	GW	X	-001
2	AP MW-4	↓	1032	↓	X	-002
3	AP MW-5	↓	1210	↓	X	-003
4	AP MW-1D	↓	1440	↓	X	-004
5	AP MW-3	↓	1602	↓	X	-005
6	Dup-1	↓	1200	↓	X	-006
7	EQ-Blank-1	↓	1530	Other	X	-007
8						
9						
10						

LABORATORY USE ONLY

Shipped by: Hand
Cooler ID(s):
Receipt Temp: 13.3 °C
On Ice: (Y) N
Custody Seal: On Bottle Y (N); On Cooler Y N
Intact: Y N
Signature Match: Y N

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Tami B. Haney	6/22/16 1710				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal:	Return to Client:	Lab Disposal:	Received by Laboratory: Twanda Reed	Date/Time: 6/22/16 1710	Signature: Twanda Reed

TR 11.2

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

August 11, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: T16060120 Quote ID: T3094

Project Name: CCRR

Energy Laboratories Inc. College Station TX received the following 8 samples for Texas Municipal Power Agency on 6/23/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
T16060120-001	SFL MW-3	06/23/16 11:10	06/23/16	Groundwater	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride E300.0 Anions Cations by ICP Metals Digestion by EPA 200.2 Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
T16060120-003	SFL MW-4	06/23/16 12:29	06/23/16	Groundwater	Same As Above
T16060120-004	SFL MW-2	06/23/16 14:12	06/23/16	Groundwater	Same As Above
T16060120-005	SFL MW-5	06/23/16 15:11	06/23/16	Groundwater	Same As Above
T16060120-006	SFL MW-6	06/23/16 15:58	06/23/16	Groundwater	Same As Above
T16060120-007	Dup-2	06/23/16 12:00	06/23/16	Groundwater	Same As Above
T16060120-008	EQ Blank-2	06/23/16 8:20	06/23/16	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 415 Graham Rd., College Station, TX 77845-9660, unless otherwise noted.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: T16060120

Report Date: 08/11/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060120-002
Client Sample ID: SFL MW-3

Report Date: 08/11/16
Collection Date: 06/23/16 11:10
DateReceived: 06/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	5940	mg/L		100		A2540 C	06/24/16 14:49 / adg
MAJOR IONS							
Chloride	1560	mg/L	D	50		E300.0	06/30/16 19:51 / pwh
Fluoride	0.8	mg/L		0.1		A4500-F C	06/28/16 13:15 / pwh
Sulfate	2220	mg/L	D	50		E300.0	06/30/16 19:51 / pwh
Calcium	687	mg/L	D	2		E200.7	06/27/16 15:08 / jtr
Boron	2.4	mg/L	D	0.5		E200.7	06/27/16 15:08 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	07/05/16 12:57 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	07/06/16 15:09 / eli-b
Barium	0.04	mg/L		0.01		E200.7	07/05/16 12:57 / eli-b
Beryllium	0.04	mg/L		0.001		E200.7	07/05/16 12:57 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	07/05/16 12:57 / eli-b
Chromium	ND	mg/L		0.01		E200.7	07/05/16 12:57 / eli-b
Cobalt	0.07	mg/L		0.02		E200.8	07/05/16 13:17 / eli-b
Lead	0.02	mg/L		0.01		E200.8	07/05/16 13:17 / eli-b
Lithium	0.4	mg/L		0.01		E200.7	07/05/16 12:57 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	07/05/16 12:57 / eli-b
Selenium	ND	mg/L		0.01		E200.8	07/05/16 13:17 / eli-b
Thallium	ND	mg/L		0.01		E200.8	07/05/16 13:17 / eli-b
METALS, TOTAL							
Mercury	0.003	mg/L		0.001		E245.1	07/05/16 17:33 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	6.3	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 226 + Radium 228	8.19	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.54	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	1.9	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 precision (±)	0.35	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 MDC	0.15	pCi/L				E903.0	08/01/16 15:06 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060120-003
Client Sample ID: SFL MW-4

Report Date: 08/11/16
Collection Date: 06/23/16 12:29
DateReceived: 06/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	6200	mg/L		100		A2540 C	06/24/16 14:50 / adg
MAJOR IONS							
Chloride	1690	mg/L	D	20		E300.0	06/30/16 20:11 / pwh
Fluoride	0.1	mg/L		0.1		A4500-F C	06/28/16 13:20 / pwh
Sulfate	2150	mg/L	D	20		E300.0	06/30/16 20:11 / pwh
Calcium	799	mg/L		1		E200.7	06/27/16 15:10 / jtr
Boron	0.6	mg/L	D	0.2		E200.7	06/27/16 15:10 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	07/05/16 13:01 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	07/06/16 15:15 / eli-b
Barium	0.04	mg/L		0.01		E200.7	07/05/16 13:01 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	07/05/16 13:01 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	07/05/16 13:01 / eli-b
Chromium	ND	mg/L		0.01		E200.7	07/05/16 13:01 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	07/05/16 13:20 / eli-b
Lead	ND	mg/L		0.01		E200.8	07/05/16 13:20 / eli-b
Lithium	0.5	mg/L		0.01		E200.7	07/05/16 13:01 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	07/05/16 13:01 / eli-b
Selenium	ND	mg/L		0.01		E200.8	07/05/16 13:20 / eli-b
Thallium	ND	mg/L		0.01		E200.8	07/05/16 13:20 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	07/01/16 16:23 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	6.4	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 226 + Radium 228	6.85	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.61	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.43	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 precision (±)	0.17	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 MDC	0.15	pCi/L				E903.0	08/01/16 15:06 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060120-004
Client Sample ID: SFL MW-2

Report Date: 08/11/16
Collection Date: 06/23/16 14:12
DateReceived: 06/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	7950	mg/L		100		A2540 C	06/24/16 14:50 / adg
MAJOR IONS							
Chloride	2900	mg/L	D	50		E300.0	06/30/16 20:30 / pwh
Fluoride	0.3	mg/L		0.1		A4500-F C	06/28/16 13:25 / pwh
Sulfate	2010	mg/L	D	50		E300.0	06/30/16 20:30 / pwh
Calcium	797	mg/L	D	2		E200.7	06/27/16 15:12 / jtr
Boron	0.52	mg/L		0.05		E200.7	06/30/16 18:46 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	07/05/16 13:05 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	07/06/16 15:20 / eli-b
Barium	0.03	mg/L		0.01		E200.7	07/05/16 13:05 / eli-b
Beryllium	0.002	mg/L		0.001		E200.7	07/05/16 13:05 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	07/05/16 13:05 / eli-b
Chromium	ND	mg/L		0.01		E200.7	07/05/16 13:05 / eli-b
Cobalt	0.02	mg/L		0.02		E200.8	07/05/16 13:23 / eli-b
Lead	ND	mg/L		0.01		E200.8	07/05/16 13:23 / eli-b
Lithium	0.5	mg/L		0.01		E200.7	07/05/16 13:05 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	07/05/16 13:05 / eli-b
Selenium	ND	mg/L		0.01		E200.8	07/05/16 13:23 / eli-b
Thallium	ND	mg/L		0.01		E200.8	07/05/16 13:23 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	07/01/16 16:25 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	7.7	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 precision (±)	1.8	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 226 + Radium 228	11.0	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.83	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	3.3	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 precision (±)	0.50	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 MDC	0.16	pCi/L				E903.0	08/01/16 15:06 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060120-005
Client Sample ID: SFL MW-5

Report Date: 08/11/16
Collection Date: 06/23/16 15:11
DateReceived: 06/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	8350	mg/L		100		A2540 C	06/24/16 14:50 / adg
MAJOR IONS							
Chloride	2990	mg/L	D	50		E300.0	06/30/16 20:50 / pwh
Fluoride	0.2	mg/L		0.1		A4500-F C	06/28/16 13:31 / pwh
Sulfate	2150	mg/L	D	50		E300.0	06/30/16 20:50 / pwh
Calcium	878	mg/L	D	2		E200.7	06/27/16 15:13 / jtr
Boron	3.5	mg/L	D	0.5		E200.7	06/27/16 15:13 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	07/05/16 13:16 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	07/06/16 15:25 / eli-b
Barium	0.04	mg/L		0.01		E200.7	07/05/16 13:16 / eli-b
Beryllium	0.008	mg/L		0.001		E200.7	07/05/16 13:16 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	07/05/16 13:16 / eli-b
Chromium	ND	mg/L		0.01		E200.7	07/05/16 13:16 / eli-b
Cobalt	0.07	mg/L		0.02		E200.8	07/05/16 13:26 / eli-b
Lead	ND	mg/L		0.01		E200.8	07/05/16 13:26 / eli-b
Lithium	0.7	mg/L		0.01		E200.7	07/05/16 13:16 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	07/05/16 13:16 / eli-b
Selenium	ND	mg/L		0.01		E200.8	07/05/16 13:26 / eli-b
Thallium	ND	mg/L		0.01		E200.8	07/05/16 13:26 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	07/01/16 16:27 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	5.9	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 226 + Radium 228	7.52	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.48	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	1.6	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 precision (±)	0.30	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 MDC	0.13	pCi/L				E903.0	08/01/16 15:06 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060120-006
Client Sample ID: SFL MW-6

Report Date: 08/11/16
Collection Date: 06/23/16 15:58
DateReceived: 06/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	8650	mg/L		100		A2540 C	06/28/16 16:03 / pwh
MAJOR IONS							
Chloride	3350	mg/L	D	50		E300.0	06/30/16 21:48 / pwh
Fluoride	0.7	mg/L		0.1		A4500-F C	06/28/16 13:39 / pwh
Sulfate	2230	mg/L	D	50		E300.0	06/30/16 21:48 / pwh
Calcium	910	mg/L	D	2		E200.7	06/27/16 15:15 / jtr
Boron	0.50	mg/L		0.05		E200.7	06/30/16 18:48 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	07/05/16 13:20 / eli-b
Arsenic	0.02	mg/L		0.01		E200.8	07/06/16 15:31 / eli-b
Barium	0.3	mg/L		0.01		E200.7	07/05/16 13:20 / eli-b
Beryllium	0.03	mg/L		0.001		E200.7	07/05/16 13:20 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	07/05/16 13:20 / eli-b
Chromium	0.01	mg/L		0.01		E200.7	07/05/16 13:20 / eli-b
Cobalt	0.1	mg/L		0.02		E200.8	07/05/16 13:29 / eli-b
Lead	0.06	mg/L		0.01		E200.8	07/05/16 13:29 / eli-b
Lithium	0.6	mg/L		0.01		E200.7	07/05/16 13:20 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	07/05/16 13:20 / eli-b
Selenium	ND	mg/L		0.01		E200.8	07/05/16 13:29 / eli-b
Thallium	ND	mg/L		0.01		E200.8	07/05/16 13:29 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	07/01/16 16:29 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	11	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 precision (±)	2.4	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	07/08/16 08:26 / eli-ca
Radium 226 + Radium 228	11.6	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	2.43	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.63	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 precision (±)	0.11	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 MDC	0.06	pCi/L				E903.0	08/01/16 15:06 / sas

- Total Radium as Ra226: Sample matrix interference resulted in high chemical recoveries which can bias the results low.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060120-007
Client Sample ID: Dup-2

Report Date: 08/11/16
Collection Date: 06/23/16 12:00
DateReceived: 06/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	5710	mg/L		100		A2540 C	06/28/16 16:03 / pwh
MAJOR IONS							
Chloride	1520	mg/L	D	50		E300.0	06/30/16 22:46 / pwh
Fluoride	0.8	mg/L		0.1		A4500-F C	06/28/16 13:46 / pwh
Sulfate	2190	mg/L	D	50		E300.0	06/30/16 22:46 / pwh
Calcium	688	mg/L	D	2		E200.7	06/27/16 15:17 / jtr
Boron	2.4	mg/L	D	0.5		E200.7	06/27/16 15:17 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	07/05/16 13:24 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	07/05/16 14:13 / eli-b
Barium	0.02	mg/L		0.01		E200.7	07/05/16 13:24 / eli-b
Beryllium	0.04	mg/L		0.001		E200.7	07/05/16 13:24 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	07/05/16 13:24 / eli-b
Chromium	ND	mg/L		0.01		E200.7	07/05/16 13:24 / eli-b
Cobalt	0.07	mg/L		0.02		E200.8	07/05/16 14:13 / eli-b
Lead	0.02	mg/L		0.01		E200.8	07/05/16 14:13 / eli-b
Lithium	0.3	mg/L		0.01		E200.7	07/05/16 13:24 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	07/05/16 13:24 / eli-b
Selenium	ND	mg/L		0.01		E200.8	07/05/16 14:13 / eli-b
Thallium	ND	mg/L		0.01		E200.8	07/05/16 14:13 / eli-b
METALS, TOTAL							
Mercury	0.003	mg/L		0.001		E245.1	07/05/16 17:35 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	3.4	pCi/L				RA-05	07/08/16 09:59 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	07/08/16 09:59 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	07/08/16 09:59 / eli-ca
Radium 226 + Radium 228	5.31	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.28	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	1.9	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 precision (±)	0.35	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 MDC	0.15	pCi/L				E903.0	08/01/16 15:06 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16060120-008
Client Sample ID: EQ Blank-2

Report Date: 08/11/16
Collection Date: 06/23/16 08:20
DateReceived: 06/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/27/16 16:15 / jjc
MAJOR IONS							
Chloride	ND	mg/L		1		E300.0	06/30/16 23:06 / pwh
Fluoride	ND	mg/L		0.1		A4500-F C	06/28/16 14:06 / pwh
Sulfate	ND	mg/L		1		E300.0	06/30/16 23:06 / pwh
Calcium	ND	mg/L		1		E200.7	06/30/16 18:51 / jtr
Boron	ND	mg/L		0.05		E200.7	06/30/16 18:51 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	07/05/16 13:28 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	07/05/16 14:16 / eli-b
Barium	ND	mg/L		0.01		E200.7	07/05/16 13:28 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	07/05/16 13:28 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	07/05/16 13:28 / eli-b
Chromium	ND	mg/L		0.01		E200.7	07/05/16 13:28 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	07/05/16 14:16 / eli-b
Lead	ND	mg/L		0.01		E200.8	07/05/16 14:16 / eli-b
Lithium	ND	mg/L		0.01		E200.7	07/05/16 13:28 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	07/05/16 13:28 / eli-b
Selenium	ND	mg/L		0.01		E200.8	07/05/16 14:16 / eli-b
Thallium	ND	mg/L		0.01		E200.8	07/05/16 14:16 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	07/01/16 16:32 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	0.80	pCi/L	U			RA-05	07/08/16 09:59 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	07/08/16 09:59 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	07/08/16 09:59 / eli-ca
Radium 226 + Radium 228	0.828	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Radium 226 + Radium 228 precision (±)	1.01	pCi/L				A7500-RA	08/11/16 00:00 / jleb
Total Radium as Ra226	0.03	pCi/L	U			E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 precision (±)	0.1	pCi/L				E903.0	08/01/16 15:06 / sas
Total Radium as Ra226 MDC	0.18	pCi/L				E903.0	08/01/16 15:06 / sas

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS160624A
Lab ID: MB-1_160624A		Method Blank				Run: BAL3_160624A				06/24/16 14:44
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: LCS-2_160624A		Laboratory Control Sample				Run: BAL3_160624A				06/24/16 14:45
Solids, Total Dissolved TDS @ 180 C		983	mg/L	10	98	90	110			
Lab ID: T16060097-005A DUP		Sample Duplicate				Run: BAL3_160624A				06/24/16 14:46
Solids, Total Dissolved TDS @ 180 C		2670	mg/L	20				1.0	5	
Method: A2540 C										Batch: TDS160627A
Lab ID: MB-2_160627A		Method Blank				Run: BAL3_160627A				06/27/16 16:15
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: LCS-3_160627A		Laboratory Control Sample				Run: BAL3_160627A				06/27/16 16:15
Solids, Total Dissolved TDS @ 180 C		1130	mg/L	11	101	90	110			
Lab ID: T16060120-008A DUP		Sample Duplicate				Run: BAL3_160627A				06/27/16 16:16
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10					5	
Method: A2540 C										Batch: TDS160628A
Lab ID: MB-1_160628A		Method Blank				Run: BAL3_160628B				06/28/16 16:02
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: LCS-2_160628A		Laboratory Control Sample				Run: BAL3_160628B				06/28/16 16:02
Solids, Total Dissolved TDS @ 180 C		1110	mg/L	11	100	90	110			
Lab ID: T16060120-006A DUP		Sample Duplicate				Run: BAL3_160628B				06/28/16 16:03
Solids, Total Dissolved TDS @ 180 C		8790	mg/L	100				1.6	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: ATT1_160628A	
Lab ID: **CCV-F2**		Continuing Calibration Verification Standard							06/28/16 13:50	
Fluoride		1.98	mg/L	0.10	99	90	110			
Method: **A4500-F C**									Batch: R68748	
Lab ID: **LCS-F-3733**		Laboratory Control Sample				Run: ATT1_160628A			06/28/16 13:53	
Fluoride		4.82	mg/L	0.10	94	90	110			
Lab ID: **MBLK**		Method Blank				Run: ATT1_160628A			06/28/16 14:00	
Fluoride		0.04	mg/L	0.002						
Lab ID: **T16060120-008ADUP**		Sample Duplicate				Run: ATT1_160628A			06/28/16 14:11	
Fluoride		0.0200	mg/L	0.10					10	
Lab ID: **T16060120-008AMS**		Sample Matrix Spike				Run: ATT1_160628A			06/28/16 14:14	
Fluoride		4.71	mg/L	0.10	92	90	110			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP102-CS_160627A	
Lab ID:	**Initial Calib Verif**	2	Initial Calibration Verification Standard							06/27/16 14:42	
Boron			1.02	mg/L	0.050	102	95	105			
Calcium			49.1	mg/L	1.0	98	95	105			
Lab ID:	**Cont Calib Blank**	2	Continuing Calibration Blank							06/27/16 14:44	
Boron			-0.00360	mg/L	0.050						
Calcium			-0.000971	mg/L	1.0						
Method:	**E200.7**									Batch: R68741	
Lab ID:	**IPC**	2	Initial Precision and Recovery				Run: ICP102-CS_160627A			06/27/16 14:49	
Boron			1.00	mg/L	0.050	100	95	105			
Calcium			50.3	mg/L	1.0	101	95	105			
Lab ID:	**LCS-160627**	2	Laboratory Control Sample				Run: ICP102-CS_160627A			06/27/16 14:54	
Calcium			49.3	mg/L	1.0	99	85	115			
Boron			1.03	mg/L	0.050	103	85	115			
Lab ID:	**MB-160627**	2	Method Blank				Run: ICP102-CS_160627A			06/27/16 14:56	
Calcium			ND	mg/L	0.08						
Boron			ND	mg/L	0.001						
Lab ID:	**T16060120-001ASD**	2	Serial Dilution				Run: ICP102-CS_160627A			06/27/16 14:59	
Calcium			1010	mg/L	10		0	0	9.4	10	
Boron			0.196	mg/L	2.5		0	0		10	N
Lab ID:	**T16060120-001AMS**	2	Sample Matrix Spike				Run: ICP102-CS_160627A			06/27/16 15:01	
Calcium			1440	mg/L	2.0	103	70	130			
Boron			10.9	mg/L	0.50	105	70	130			
Lab ID:	**T16060120-001AMSD**	2	Sample Matrix Spike Duplicate				Run: ICP102-CS_160627A			06/27/16 15:03	
Calcium			1430	mg/L	2.0	102	70	130	0.4	20	
Boron			11.0	mg/L	0.50	105	70	130	0.2	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP102-CS_160630E	
Lab ID:	**Initial Calib Verif**	2	Initial Calibration Verification Standard							06/30/16 18:12	
Boron			0.997	mg/L	0.050	100	95	105			
Calcium			49.5	mg/L	1.0	99	95	105			
Lab ID:	**Cont Calib Blank**	2	Continuing Calibration Blank							06/30/16 18:14	
Boron			0.00156	mg/L	0.050						
Calcium			-0.00112	mg/L	1.0						
Method:	**E200.7**									Batch: R68816	
Lab ID:	**IPC**	2	Initial Precision and Recovery				Run: ICP102-CS_160630E			06/30/16 18:18	
Boron			0.976	mg/L	0.050	98	95	105			
Calcium			48.7	mg/L	1.0	97	95	105			
Lab ID:	**LCS-160630**	2	Laboratory Control Sample				Run: ICP102-CS_160630E			06/30/16 18:25	
Calcium			49.5	mg/L	1.0	99	85	115			
Boron			0.985	mg/L	0.050	98	85	115			
Lab ID:	**MB-160630**	2	Method Blank				Run: ICP102-CS_160630E			06/30/16 18:27	
Calcium			ND	mg/L	0.08						
Boron			0.001	mg/L	0.001						
Lab ID:	**T16060109-001ASD**	2	Serial Dilution				Run: ICP102-CS_160630E			06/30/16 18:31	
Calcium			38.0	mg/L	1.0		0	0	4.1	10	
Boron			0.0822	mg/L	0.25		0	0		10	
Lab ID:	**T16060109-001AMS**	2	Sample Matrix Spike				Run: ICP102-CS_160630E			06/30/16 18:33	
Calcium			86.5	mg/L	1.0	100	70	130			
Boron			1.11	mg/L	0.050	103	70	130			
Lab ID:	**T16060109-001AMSD**	2	Sample Matrix Spike Duplicate				Run: ICP102-CS_160630E			06/30/16 18:35	
Calcium			86.4	mg/L	1.0	100	70	130	0.1	20	
Boron			1.12	mg/L	0.050	104	70	130	0.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: SUB-B263344	
Lab ID: ICV	7	Continuing Calibration Verification Standard							07/05/16 11:41	
Antimony		2.45	mg/L	0.050	98	95	105			
Barium		2.53	mg/L	0.10	101	95	105			
Beryllium		1.25	mg/L	0.010	100	95	105			
Cadmium		2.46	mg/L	0.010	98	95	105			
Chromium		2.51	mg/L	0.050	100	95	105			
Lithium		1.26	mg/L	0.10	101	95	105			
Molybdenum		2.46	mg/L	0.10	99	95	105			
Method: E200.7									Batch: B_100518	
Lab ID: MB-100518	7	Method Blank				Run: SUB-B263344			07/05/16 12:31	
Antimony		ND	mg/L	0.01						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	8E-05						
Cadmium		ND	mg/L	0.0004						
Chromium		ND	mg/L	0.003						
Lithium		0.004	mg/L	0.002						
Molybdenum		0.005	mg/L	0.003						
Lab ID: LCS-100518	7	Laboratory Control Sample				Run: SUB-B263344			07/05/16 12:35	
Antimony		0.520	mg/L	0.10	104	85	115			
Barium		0.532	mg/L	0.10	106	85	115			
Beryllium		0.262	mg/L	0.010	105	85	115			
Cadmium		0.258	mg/L	0.010	103	85	115			
Chromium		0.527	mg/L	0.050	105	85	115			
Lithium		0.535	mg/L	0.10	106	85	115			
Molybdenum		0.520	mg/L	0.10	103	85	115			
Lab ID: T16060120-001B	7	Sample Matrix Spike				Run: SUB-B263344			07/05/16 12:50	
Antimony		0.506	mg/L	0.025	101	70	130			
Barium		0.540	mg/L	0.050	103	70	130			
Beryllium		0.295	mg/L	0.0010	102	70	130			
Cadmium		0.250	mg/L	0.0010	97	70	130			
Chromium		0.505	mg/L	0.0050	99	70	130			
Lithium		1.15	mg/L	0.10	106	70	130			
Molybdenum		0.505	mg/L	0.0065	99	70	130			
Lab ID: T16060120-001B	7	Sample Matrix Spike Duplicate				Run: SUB-B263344			07/05/16 12:54	
Antimony		0.491	mg/L	0.025	98	70	130	3.0	20	
Barium		0.558	mg/L	0.050	107	70	130	3.2	20	
Beryllium		0.305	mg/L	0.0010	106	70	130	3.4	20	
Cadmium		0.252	mg/L	0.0010	97	70	130	0.7	20	
Chromium		0.515	mg/L	0.0050	101	70	130	1.8	20	
Lithium		1.17	mg/L	0.10	111	70	130	2.2	20	
Molybdenum		0.517	mg/L	0.0065	102	70	130	2.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: B_100518
Lab ID: B16062493-001BMS3	7	Sample Matrix Spike				Run: SUB-B263344				07/05/16 13:49
Antimony		0.495	mg/L	0.015	99	70	130			
Barium		0.530	mg/L	0.050	104	70	130			
Beryllium		0.253	mg/L	0.0010	101	70	130			
Cadmium		0.251	mg/L	0.0010	100	70	130			
Chromium		0.505	mg/L	0.0050	101	70	130			
Lithium		0.539	mg/L	0.10	107	70	130			
Molybdenum		0.515	mg/L	0.0048	103	70	130			
Lab ID: B16062493-001BMSD	7	Sample Matrix Spike Duplicate				Run: SUB-B263344				07/05/16 13:59
Antimony		0.532	mg/L	0.015	106	70	130	7.2	20	
Barium		0.544	mg/L	0.050	107	70	130	2.7	20	
Beryllium		0.256	mg/L	0.0010	103	70	130	1.3	20	
Cadmium		0.257	mg/L	0.0010	103	70	130	2.4	20	
Chromium		0.514	mg/L	0.0050	103	70	130	1.9	20	
Lithium		0.555	mg/L	0.10	110	70	130	2.9	20	
Molybdenum		0.517	mg/L	0.0048	103	70	130	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: SUB-B263348	
Lab ID: QCS	11	Initial Calibration Verification Standard							07/05/16 11:42	
Antimony		0.0507	mg/L	0.050	101	90	110			
Arsenic		0.0503	mg/L	0.0050	101	90	110			
Barium		0.0489	mg/L	0.10	98	90	110			
Beryllium		0.0269	mg/L	0.0010	107	90	110			
Cadmium		0.0255	mg/L	0.0010	102	90	110			
Chromium		0.0497	mg/L	0.010	99	90	110			
Cobalt		0.0500	mg/L	0.010	100	90	110			
Lead		0.0492	mg/L	0.010	98	90	110			
Molybdenum		0.0489	mg/L	0.0050	98	90	110			
Selenium		0.0484	mg/L	0.0050	97	90	110			
Thallium		0.0492	mg/L	0.10	98	90	110			
Lab ID: QCS	11	Initial Calibration Verification Standard							07/05/16 14:01	
Antimony		0.0498	mg/L	0.050	100	90	110			
Arsenic		0.0501	mg/L	0.0050	100	90	110			
Barium		0.0489	mg/L	0.10	98	90	110			
Beryllium		0.0255	mg/L	0.0010	102	90	110			
Cadmium		0.0253	mg/L	0.0010	101	90	110			
Chromium		0.0497	mg/L	0.010	99	90	110			
Cobalt		0.0499	mg/L	0.010	100	90	110			
Lead		0.0487	mg/L	0.010	97	90	110			
Molybdenum		0.0485	mg/L	0.0050	97	90	110			
Selenium		0.0500	mg/L	0.0050	100	90	110			
Thallium		0.0489	mg/L	0.10	98	90	110			
Method: E200.8									Batch: B_100518	
Lab ID: MB-100518	11	Method Blank				Run: SUB-B263348			07/05/16 12:42	
Antimony		0.0002	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Barium		ND	mg/L	9E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		2E-05	mg/L	2E-05						
Chromium		0.0002	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		3E-05	mg/L	2E-05						
Molybdenum		0.0002	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: T16060120-001B	11	Sample Matrix Spike				Run: SUB-B263348			07/05/16 13:02	
Antimony		0.544	mg/L	0.0010	109	70	130			
Arsenic		0.529	mg/L	0.0010	105	70	130			
Barium		0.540	mg/L	0.050	103	70	130			
Beryllium		0.286	mg/L	0.0010	97	70	130			
Cadmium		0.266	mg/L	0.0010	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: B_100518	
Lab ID: T16060120-001B	11	Sample Matrix Spike				Run: SUB-B263348			07/05/16 13:02	
Chromium		0.503	mg/L	0.0050	100	70	130			
Cobalt		0.591	mg/L	0.0050	97	70	130			
Lead		0.667	mg/L	0.0010	128	70	130			
Molybdenum		0.579	mg/L	0.0010	116	70	130			
Selenium		0.514	mg/L	0.0010	102	70	130			
Thallium		0.619	mg/L	0.00050	123	70	130			
Lab ID: T16060120-001B	11	Sample Matrix Spike Duplicate				Run: SUB-B263348			07/05/16 13:05	
Antimony		0.556	mg/L	0.0010	111	70	130	2.2	20	
Arsenic		0.535	mg/L	0.0010	106	70	130	1.2	20	
Barium		0.552	mg/L	0.050	105	70	130	2.2	20	
Beryllium		0.292	mg/L	0.0010	100	70	130	2.4	20	
Cadmium		0.270	mg/L	0.0010	104	70	130	1.5	20	
Chromium		0.518	mg/L	0.0050	103	70	130	2.9	20	
Cobalt		0.603	mg/L	0.0050	100	70	130	2.1	20	
Lead		0.729	mg/L	0.0010	140	70	130	8.8	20	S
Molybdenum		0.588	mg/L	0.0010	118	70	130	1.7	20	
Selenium		0.540	mg/L	0.0010	108	70	130	5.0	20	
Thallium		0.679	mg/L	0.00050	135	70	130	9.2	20	S
Lab ID: LCS-100518	11	Laboratory Control Sample				Run: SUB-B263348			07/05/16 13:08	
Antimony		0.563	mg/L	0.0050	113	85	115			
Arsenic		0.507	mg/L	0.0010	101	85	115			
Barium		0.501	mg/L	0.010	100	85	115			
Beryllium		0.274	mg/L	0.0010	110	85	115			
Cadmium		0.265	mg/L	0.0010	106	85	115			
Chromium		0.508	mg/L	0.0010	102	85	115			
Cobalt		0.489	mg/L	0.0010	98	85	115			
Lead		0.558	mg/L	0.0010	112	85	115			
Molybdenum		0.541	mg/L	0.0050	108	85	115			
Selenium		0.501	mg/L	0.0050	100	85	115			
Thallium		0.541	mg/L	0.0010	108	85	115			
Lab ID: B16062493-001BMS3	11	Sample Matrix Spike				Run: SUB-B263348			07/05/16 14:25	
Antimony		0.543	mg/L	0.0010	109	70	130			
Arsenic		0.502	mg/L	0.0010	100	70	130			
Barium		0.511	mg/L	0.050	100	70	130			
Beryllium		0.247	mg/L	0.0010	99	70	130			
Cadmium		0.257	mg/L	0.0010	103	70	130			
Chromium		0.508	mg/L	0.0050	102	70	130			
Cobalt		0.479	mg/L	0.0050	96	70	130			
Lead		0.558	mg/L	0.0010	111	70	130			
Molybdenum		0.512	mg/L	0.0010	102	70	130			
Selenium		0.510	mg/L	0.0010	102	70	130			
Thallium		0.542	mg/L	0.00050	108	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: B_100518
Lab ID: **B16062493-001BMS3**	11	Sample Matrix Spike				Run: SUB-B263348				07/05/16 14:25
Lab ID: **B16062493-001BMSD**	11	Sample Matrix Spike Duplicate				Run: SUB-B263348				07/05/16 14:28
Antimony		0.550	mg/L	0.0010	110	70	130	1.3	20	
Arsenic		0.512	mg/L	0.0010	102	70	130	2.0	20	
Barium		0.529	mg/L	0.050	104	70	130	3.5	20	
Beryllium		0.253	mg/L	0.0010	101	70	130	2.2	20	
Cadmium		0.261	mg/L	0.0010	105	70	130	1.6	20	
Chromium		0.527	mg/L	0.0050	105	70	130	3.6	20	
Cobalt		0.482	mg/L	0.0050	96	70	130	0.6	20	
Lead		0.568	mg/L	0.0010	113	70	130	1.8	20	
Molybdenum		0.513	mg/L	0.0010	103	70	130	0.2	20	
Selenium		0.524	mg/L	0.0010	105	70	130	2.7	20	
Thallium		0.555	mg/L	0.00050	111	70	130	2.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: SUB-B263404	
Lab ID: **QCS**		Initial Calibration Verification Standard							07/06/16 12:07	
Arsenic		0.0492	mg/L	0.0050	98	90	110			
Method: **E200.8**									Batch: B_100518	
Lab ID: **MB-100518**	11	Method Blank				Run: SUB-B263404			07/06/16 15:04	
Antimony		ND	mg/L	4E-05						
Arsenic		ND	mg/L	6E-05						
Barium		ND	mg/L	5E-05						
Beryllium		ND	mg/L	6E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	0.0002						
Cobalt		ND	mg/L	1E-05						
Lead		ND	mg/L	3E-05						
Molybdenum		0.0001	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Thallium		4E-05	mg/L	1E-05						
Lab ID: **LCS-100518**	11	Laboratory Control Sample				Run: SUB-B263404			07/06/16 16:08	
Antimony		0.520	mg/L	0.0050	104	85	115			
Arsenic		0.481	mg/L	0.0010	96	85	115			
Barium		0.470	mg/L	0.010	94	85	115			
Beryllium		0.281	mg/L	0.0010	112	85	115			
Cadmium		0.259	mg/L	0.0010	103	85	115			
Chromium		0.461	mg/L	0.0010	92	85	115			
Cobalt		0.448	mg/L	0.0010	90	85	115			
Lead		0.482	mg/L	0.0010	96	85	115			
Molybdenum		0.551	mg/L	0.0050	110	85	115			
Selenium		0.497	mg/L	0.0050	99	85	115			
Thallium		0.463	mg/L	0.0010	93	85	115			
Lab ID: **B16062493-001BMS3**	11	Sample Matrix Spike				Run: SUB-B263404			07/06/16 16:13	
Antimony		0.522	mg/L	0.0010	104	70	130			
Arsenic		0.502	mg/L	0.0010	100	70	130			
Barium		0.478	mg/L	0.050	94	70	130			
Beryllium		0.276	mg/L	0.0010	110	70	130			
Cadmium		0.260	mg/L	0.0010	104	70	130			
Chromium		0.494	mg/L	0.0050	99	70	130			
Cobalt		0.483	mg/L	0.0050	97	70	130			
Lead		0.499	mg/L	0.0010	100	70	130			
Molybdenum		0.545	mg/L	0.0010	109	70	130			
Selenium		0.523	mg/L	0.0012	105	70	130			
Thallium		0.471	mg/L	0.00050	94	70	130			
Lab ID: **B16062493-001BMSD**	11	Sample Matrix Spike Duplicate				Run: SUB-B263404			07/06/16 16:18	
Antimony		0.523	mg/L	0.0010	105	70	130	0.1	20	
Arsenic		0.512	mg/L	0.0010	103	70	130	2.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: B_100518
Lab ID: **B16062493-001BMSD**	11	Sample Matrix Spike Duplicate				Run: SUB-B263404				07/06/16 16:18
Barium		0.486	mg/L	0.050	96	70	130	1.8	20	
Beryllium		0.282	mg/L	0.0010	113	70	130	2.3	20	
Cadmium		0.265	mg/L	0.0010	106	70	130	1.9	20	
Chromium		0.511	mg/L	0.0050	102	70	130	3.4	20	
Cobalt		0.494	mg/L	0.0050	99	70	130	2.2	20	
Lead		0.520	mg/L	0.0010	104	70	130	3.9	20	
Molybdenum		0.546	mg/L	0.0010	109	70	130	0.2	20	
Selenium		0.520	mg/L	0.0012	104	70	130	0.6	20	
Thallium		0.500	mg/L	0.00050	100	70	130	6.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: SUB-B263296	
Lab ID: **ICV**	Initial Calibration Verification Standard								07/01/16 15:49	
Mercury		0.0020	mg/L	0.00010	101	90	110			
Method: **E245.1**									Batch: B_100530	
Lab ID: **MB-100530**	Method Blank					Run: SUB-B263296			07/01/16 15:54	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-100530**	Laboratory Control Sample					Run: SUB-B263296			07/01/16 15:56	
Mercury		0.0020	mg/L	0.00010	101	85	115			
Lab ID: **B16062389-001BMS**	Sample Matrix Spike					Run: SUB-B263296			07/01/16 16:02	
Mercury		0.0020	mg/L	0.00010	98	70	130			
Lab ID: **B16062389-001BMSD**	Sample Matrix Spike Duplicate					Run: SUB-B263296			07/01/16 16:04	
Mercury		0.0020	mg/L	0.00010	100	70	130	1.6	30	
Lab ID: **B16062472-001CMS**	Sample Matrix Spike					Run: SUB-B263296			07/01/16 16:36	
Mercury		0.0020	mg/L	0.00010	102	70	130			
Lab ID: **B16062472-001CMSD**	Sample Matrix Spike Duplicate					Run: SUB-B263296			07/01/16 16:38	
Mercury		0.0020	mg/L	0.00010	102	70	130	0.8	30	
Method: **E245.1**									Analytical Run: SUB-B263366	
Lab ID: **ICV**	Initial Calibration Verification Standard								07/05/16 16:32	
Mercury		0.0022	mg/L	0.00010	110	90	110			
Method: **E245.1**									Batch: B_100575	
Lab ID: **MB-100575**	Method Blank					Run: SUB-B263366			07/05/16 16:59	
Mercury		ND	mg/L	3E-06						
Lab ID: **LCS-100575**	Laboratory Control Sample					Run: SUB-B263366			07/05/16 17:01	
Mercury		0.0022	mg/L	0.00010	108	85	115			
Lab ID: **T16060120-007B**	Sample Matrix Spike					Run: SUB-B263366			07/05/16 17:37	
Mercury		0.0049	mg/L	0.00010	93	70	130			
Lab ID: **T16060120-007B**	Sample Matrix Spike Duplicate					Run: SUB-B263366			07/05/16 17:38	
Mercury		0.0048	mg/L	0.00010	88	70	130	2.3	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC1_160630A	
Lab ID: **ICV/LCS-W-3770**	2	Initial Calibration Verification Standard							06/30/16 16:17	
Chloride		103	mg/L	2.0	103	90	110			
Sulfate		102	mg/L	2.0	102	90	110			
Method: **E300.0**									Batch: R68818	
Lab ID: **ICB**	2	Method Blank				Run: IC1_160630A			06/30/16 16:37	
Chloride		0.4	mg/L	0.05						
Sulfate		ND	mg/L	0.03						
Lab ID: **LFB-3733**	2	Laboratory Fortified Blank				Run: IC1_160630A			06/30/16 16:56	
Chloride		23.7	mg/L	1.0	93	90	110			
Sulfate		23.8	mg/L	1.0	95	90	110			
Lab ID: **T16060120-006AMS**	2	Sample Matrix Spike				Run: IC1_160630A			06/30/16 22:07	
Chloride		4360	mg/L	50	81	90	110			S
Sulfate		3410	mg/L	50	95	90	110			
- Low spike recovery due to matrix interference										
Lab ID: **T16060120-006AMSD**	2	Sample Matrix Spike Duplicate				Run: IC1_160630A			06/30/16 22:27	
Chloride		4400	mg/L	50	83	90	110	0.8	10	S
Sulfate		3470	mg/L	50	99	90	110	1.5	10	
- Low spike recovery due to matrix interference										

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-0136
Lab ID: MB-RA226-0136	3	Method Blank				Run: RAD104-CS_160726A				08/01/16 13:23
Total Radium as Ra226		0.04	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: LCS-RA226-0136		Laboratory Control Sample				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		55	pCi/L		102	80	120			
Lab ID: TapWater1MS		Sample Matrix Spike				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		100	pCi/L		97	70	130			
Lab ID: TapWater1MSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160726A				08/01/16 13:23
Radium 226		110	pCi/L		102	70	130	5.4	29.3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 08/11/16

Project: CCRR **Work Order:** T16060120

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: C_RA228-5259
Lab ID: **LCS-228-RA226-8160**		Laboratory Control Sample				Run: SUB-C213224				07/08/16 08:26
Radium 228		8.6	pCi/L		95	80	120			
Lab ID: **MB-RA226-8160**	3	Method Blank				Run: SUB-C213224				07/08/16 08:26
Radium 228		2	pCi/L							
Radium 228 precision (±)		0.9	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C16060982-003AMS**		Sample Matrix Spike				Run: SUB-C213224				07/08/16 08:26
Radium 228		42	pCi/L		117	70	130			
Lab ID: **C16060982-003AMSD**		Sample Matrix Spike Duplicate				Run: SUB-C213224				07/08/16 08:26
Radium 228		46	pCi/L		142	70	130	8.8	47.1	S

- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD recoveries are acceptable, the response is considered to be matrix related The batch is approved.

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

Workorder	Sample	Recovery	
T16060120			
	T16060120-001C	94.67%	Ra-228
	T16060120-001C	114.76%	Ra-226
	T16060120-002C	98.76%	Ra-228
	T16060120-002C	106.21%	Ra-226
	T16060120-003C	100.00%	Ra-228
	T16060120-003C	102.52%	Ra-226
	T16060120-004C	95.53%	Ra-228
	T16060120-004C	100.53%	Ra-226
	T16060120-005C	96.45%	Ra-228
	T16060120-005C	115.15%	Ra-226
	T16060120-006C	84.55%	Ra-228
	T16060120-006C	261.36%	Ra-226
	T16060120-007C	102.49%	Ra-228
	T16060120-007C	106.60%	Ra-226
	T16060120-008C	95.56%	Ra-228
	T16060120-008C	96.70%	Ra-226

Work Order Receipt Checklist

Texas Municipal Power Agency T16060120

Login completed by: Alisha D. Griffin
Date Received: 6/23/2016
Reviewed by: BL2000\ssuchar
Received by: sas
Reviewed Date: 6/24/2016
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	10.6°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

pH check of applicable preserved fractions acceptable (Lot#3633), except for sample -006. 15mL of HNO3 (PRESA39) added to sample -006. Initial pH ok. 24hr pH hold needed. Receipt temperature checked with Thermo 1211: read temperature = 10.6°C; no corrections. ADG 160624 11:19

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: AMEC Foster Wheeler/TMPA

Project Name, PWS, Permit, Etc.: Morriss Barney

Sample Origin State:

EPA/State Compliance: Yes ☐ No ☐

Report Mail Address:

Contact Name: Phone/Fax: Email:

Sampler: (Please Print) DBH/SM

Invoice Address:

Invoice Contact & Phone:

Purchase Order:

Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format:
☐ State: ☐ LEVEL IV
☐ Other: ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

Schedule 1+2

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Shipped by: Hand

Cooler ID(s):

Receipt Temp 10.6 °C

On Ice: melted (Y) N

Custody Seal On Bottle Y N On Cooler Y N

Intact Y N

Signature Match Y N

Comments:
Therm 1210

½ gal may need extra preserv.

T16060120

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Schedule 1+2	SEE ATTACHED	Standard TAT	RUSH	LABORATORY USE ONLY
1	SFL MW-1	6-23-16	0959	GW	X	X			-001
2	SFL MW-3		1110		X	X			-002
3	SFL MW-4		1229		X	X			-003
4	SFL MW-2		1412		X	X			-004
5	SFL MW-5		1511		X	X			-005
6	SFL MW-6		1558		X	X			-006
7	Dup-2		1200		X	X			-007
8	EQ Blank-2		~~0800~~ 0820	other	X	X			-008
9									
10									

* NO ~~Ice~~ Nitric in half gallon
* 3 small vials of Nitric Acid used in half gallon

Custody Record MUST be Signed

Relinquished by (print): Date/Time: 6/23/16 1704 Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Steve Suchar Date/Time: 6/23/16 1704 Signature:

Sample Disposal: Return to Client: Lab Disposal:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

September 21, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: T16080082 Quote ID: T3094

Project Name: CCRR

Energy Laboratories Inc. College Station TX received the following 8 samples for Texas Municipal Power Agency on 8/23/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
T16080082-001	SSP/AP MW-1	08/23/16 10:28	08/23/16	Groundwater	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride E300.0 Anions Cations by ICP pH Metals Digestion by EPA 200.2 Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
T16080082-002	SSP MW-2	08/23/16 11:25	08/23/16	Groundwater	Same As Above
T16080082-003	SSP MW-3	08/23/16 12:20	08/23/16	Groundwater	Same As Above
T16080082-004	SSP MW-4	08/23/16 13:27	08/23/16	Groundwater	Same As Above
T16080082-007	DUP-1	08/23/16 0:00	08/23/16	Groundwater	Same As Above
T16080082-008	EQBK 8-23	08/23/16 16:24	08/23/16	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 415 Graham Rd., College Station, TX 77845-9660, unless otherwise noted.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: T16080082

Report Date: 09/21/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080082-001
Client Sample ID: SSP/AP MW-1

Report Date: 09/21/16
Collection Date: 08/23/16 10:28
DateReceived: 08/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	08/24/16 14:55 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	6800	mg/L		100		A2540 C	08/24/16 16:15 / rda
MAJOR IONS							
Chloride	1460	mg/L	D	20		E300.0	08/24/16 22:10 / pwh
Fluoride	0.2	mg/L		0.1		A4500-F C	08/25/16 13:34 / pwh
Sulfate	2950	mg/L	D	20		E300.0	08/24/16 22:10 / pwh
Calcium	683	mg/L		1		E200.7	08/25/16 14:28 / jtr
Magnesium	147	mg/L		1		E200.7	08/25/16 14:28 / jtr
Potassium	64	mg/L		1		E200.7	08/25/16 14:28 / jtr
Sodium	1200	mg/L		1		E200.7	08/25/16 14:28 / jtr
Boron	1.0	mg/L	D	0.2		E200.7	08/25/16 14:28 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	08/31/16 14:29 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	08/31/16 14:29 / eli-b
Barium	0.05	mg/L		0.01		E200.8	08/31/16 14:29 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	09/01/16 08:30 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	08/31/16 14:29 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/31/16 14:29 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	08/31/16 14:29 / eli-b
Lead	ND	mg/L		0.01		E200.8	08/31/16 14:29 / eli-b
Lithium	1.2	mg/L		0.01		E200.7	09/01/16 08:30 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	08/31/16 14:29 / eli-b
Selenium	ND	mg/L		0.01		E200.8	08/31/16 14:29 / eli-b
Thallium	ND	mg/L		0.01		E200.8	08/31/16 14:29 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/30/16 15:34 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.3	pCi/L	U			RA-05	09/06/16 13:48 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 226 + Radium 228	2.92	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Radium 226 + Radium 228 precision (±)	1.18	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Total Radium as Ra226	1.6	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	0.33	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080082-002
Client Sample ID: SSP MW-2

Report Date: 09/21/16
Collection Date: 08/23/16 11:25
DateReceived: 08/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.2	s.u.	H	0.1		A4500-H B	08/24/16 15:00 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	7070	mg/L		100		A2540 C	08/24/16 16:15 / rda
MAJOR IONS							
Chloride	2470	mg/L	D	50		E300.0	08/24/16 23:08 / pwh
Fluoride	0.2	mg/L		0.1		A4500-F C	08/25/16 13:48 / pwh
Sulfate	2070	mg/L	D	50		E300.0	08/24/16 23:08 / pwh
Calcium	838	mg/L		1		E200.7	08/25/16 14:29 / jtr
Magnesium	187	mg/L		1		E200.7	08/25/16 14:29 / jtr
Potassium	72	mg/L		1		E200.7	08/25/16 14:29 / jtr
Sodium	1110	mg/L		1		E200.7	08/25/16 14:29 / jtr
Boron	0.6	mg/L	D	0.2		E200.7	08/25/16 14:29 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	08/31/16 14:32 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	08/31/16 14:32 / eli-b
Barium	0.04	mg/L		0.01		E200.8	08/31/16 14:32 / eli-b
Beryllium	0.006	mg/L		0.001		E200.7	09/01/16 08:34 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	08/31/16 14:32 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/31/16 14:32 / eli-b
Cobalt	0.05	mg/L		0.02		E200.8	08/31/16 14:32 / eli-b
Lead	ND	mg/L		0.01		E200.8	08/31/16 14:32 / eli-b
Lithium	0.8	mg/L		0.01		E200.7	09/01/16 08:34 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	08/31/16 14:32 / eli-b
Selenium	ND	mg/L		0.01		E200.8	08/31/16 14:32 / eli-b
Thallium	ND	mg/L		0.01		E200.8	08/31/16 14:32 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/30/16 15:36 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.7	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 226 + Radium 228	3.11	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Radium 226 + Radium 228 precision (±)	1.05	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Total Radium as Ra226	1.5	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	0.32	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.18	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080082-003
Client Sample ID: SSP MW-3

Report Date: 09/21/16
Collection Date: 08/23/16 12:20
DateReceived: 08/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	4.9	s.u.	H	0.1		A4500-H B	08/24/16 15:08 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	6610	mg/L		100		A2540 C	08/24/16 16:15 / rda
MAJOR IONS							
Chloride	1790	mg/L	D	20		E300.0	08/25/16 00:07 / pwh
Fluoride	0.8	mg/L		0.1		A4500-F C	08/25/16 14:02 / pwh
Sulfate	2500	mg/L	D	20		E300.0	08/25/16 00:07 / pwh
Calcium	693	mg/L		1		E200.7	08/25/16 14:31 / jtr
Magnesium	172	mg/L		1		E200.7	08/25/16 14:31 / jtr
Potassium	58	mg/L		1		E200.7	08/25/16 14:31 / jtr
Sodium	1060	mg/L		1		E200.7	08/25/16 14:31 / jtr
Boron	2.9	mg/L	D	0.2		E200.7	08/25/16 14:31 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	08/31/16 14:34 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	08/31/16 14:34 / eli-b
Barium	0.05	mg/L		0.01		E200.8	08/31/16 14:34 / eli-b
Beryllium	0.1	mg/L		0.001		E200.7	09/01/16 08:38 / eli-b
Cadmium	0.05	mg/L		0.01		E200.8	08/31/16 14:34 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/31/16 14:34 / eli-b
Cobalt	0.6	mg/L		0.02		E200.8	08/31/16 14:34 / eli-b
Lead	ND	mg/L		0.01		E200.8	08/31/16 14:34 / eli-b
Lithium	0.6	mg/L		0.01		E200.7	09/01/16 08:38 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	08/31/16 14:34 / eli-b
Selenium	ND	mg/L		0.01		E200.8	08/31/16 14:34 / eli-b
Thallium	ND	mg/L		0.01		E200.8	08/31/16 14:34 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/30/16 15:41 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	30	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 precision (±)	5.7	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 226 + Radium 228	49.8	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Radium 226 + Radium 228 precision (±)	6.07	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Total Radium as Ra226	20	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	2.1	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.19	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080082-004
Client Sample ID: SSP MW-4

Report Date: 09/21/16
Collection Date: 08/23/16 13:27
DateReceived: 08/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	7.1	s.u.	H	0.1		A4500-H B	08/24/16 15:13 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	3880	mg/L		40		A2540 C	08/24/16 16:16 / rda
MAJOR IONS							
Chloride	1110	mg/L	D	20		E300.0	08/25/16 00:26 / pwh
Fluoride	0.1	mg/L		0.1		A4500-F C	08/25/16 14:05 / pwh
Sulfate	1140	mg/L	D	20		E300.0	08/25/16 00:26 / pwh
Calcium	395	mg/L		1		E200.7	08/25/16 14:42 / jtr
Magnesium	81	mg/L		1		E200.7	08/25/16 14:42 / jtr
Potassium	63	mg/L		1		E200.7	08/25/16 14:42 / jtr
Sodium	708	mg/L		1		E200.7	08/25/16 14:42 / jtr
Boron	1.3	mg/L	D	0.2		E200.7	08/25/16 14:42 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	08/31/16 14:37 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	08/31/16 14:37 / eli-b
Barium	0.04	mg/L		0.01		E200.8	08/31/16 14:37 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	09/01/16 08:42 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	08/31/16 14:37 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/31/16 14:37 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	08/31/16 14:37 / eli-b
Lead	ND	mg/L		0.01		E200.8	08/31/16 14:37 / eli-b
Lithium	0.9	mg/L		0.01		E200.7	09/01/16 08:42 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	08/31/16 14:37 / eli-b
Selenium	ND	mg/L		0.01		E200.8	08/31/16 14:37 / eli-b
Thallium	ND	mg/L		0.01		E200.8	08/31/16 14:37 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/30/16 15:43 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	2.7	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 226 + Radium 228	6.82	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Radium 226 + Radium 228 precision (±)	1.41	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Total Radium as Ra226	4.2	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	0.64	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.20	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080082-007
Client Sample ID: DUP-1

Report Date: 09/21/16
Collection Date: 08/23/16
DateReceived: 08/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	7.1	s.u.	H	0.1		A4500-H B	08/24/16 15:26 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	3900	mg/L		40		A2540 C	08/24/16 16:17 / rda
MAJOR IONS							
Chloride	1170	mg/L	D	20		E300.0	08/25/16 01:25 / pwh
Fluoride	ND	mg/L		0.1		A4500-F C	08/25/16 14:17 / pwh
Sulfate	1210	mg/L	D	20		E300.0	08/25/16 01:25 / pwh
Calcium	391	mg/L		1		E200.7	08/25/16 14:48 / jtr
Magnesium	80	mg/L		1		E200.7	08/25/16 14:48 / jtr
Potassium	62	mg/L		1		E200.7	08/25/16 14:48 / jtr
Sodium	699	mg/L		1		E200.7	08/25/16 14:48 / jtr
Boron	1.3	mg/L	D	0.2		E200.7	08/25/16 14:48 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	08/31/16 14:44 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	08/31/16 14:44 / eli-b
Barium	0.04	mg/L		0.01		E200.8	08/31/16 14:44 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	09/01/16 09:04 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	08/31/16 14:44 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/31/16 14:44 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	08/31/16 14:44 / eli-b
Lead	ND	mg/L		0.01		E200.8	08/31/16 14:44 / eli-b
Lithium	0.9	mg/L		0.01		E200.7	09/01/16 09:04 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	08/31/16 14:44 / eli-b
Selenium	ND	mg/L		0.01		E200.8	08/31/16 14:44 / eli-b
Thallium	ND	mg/L		0.01		E200.8	08/31/16 14:44 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/30/16 15:49 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	4.0	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/06/16 13:48 / eli-ca
Radium 226 + Radium 228	7.24	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Radium 226 + Radium 228 precision (±)	1.63	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Total Radium as Ra226	3.2	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	0.50	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080082-008
Client Sample ID: EQBK 8-23

Report Date: 09/21/16
Collection Date: 08/23/16 16:24
DateReceived: 08/23/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.2	s.u.	H	0.1		A4500-H B	08/24/16 15:30 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/24/16 16:17 / rda
MAJOR IONS							
Chloride	ND	mg/L		1		E300.0	08/25/16 01:44 / pwh
Fluoride	ND	mg/L		0.1		A4500-F C	08/25/16 14:24 / pwh
Sulfate	ND	mg/L		1		E300.0	08/25/16 01:44 / pwh
Calcium	ND	mg/L		1		E200.7	08/25/16 14:49 / jtr
Magnesium	ND	mg/L		1		E200.7	08/25/16 14:49 / jtr
Potassium	ND	mg/L		1		E200.7	08/25/16 14:49 / jtr
Sodium	ND	mg/L		1		E200.7	08/25/16 14:49 / jtr
Boron	ND	mg/L		0.05		E200.7	08/25/16 14:49 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	08/31/16 15:02 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	08/31/16 15:02 / eli-b
Barium	ND	mg/L		0.01		E200.8	08/31/16 15:02 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	09/01/16 09:21 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	08/31/16 15:02 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/31/16 15:02 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	08/31/16 15:02 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/07/16 14:42 / eli-b
Lithium	ND	mg/L		0.01		E200.7	09/01/16 09:21 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	08/31/16 15:02 / eli-b
Selenium	ND	mg/L		0.01		E200.8	08/31/16 15:02 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/07/16 14:42 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/30/16 15:51 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	0.30	pCi/L	U			RA-05	09/06/16 15:24 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/06/16 15:24 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	09/06/16 15:24 / eli-ca
Radium 226 + Radium 228	0.338	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Radium 226 + Radium 228 precision (±)	1.25	pCi/L				A7500-RA	09/20/16 00:00 / ajm
Total Radium as Ra226	0.04	pCi/L	U			E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	0.12	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.20	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**									Batch: TDS160824B	
Lab ID: **MB-1_160824B**		Method Blank				Run: BAL3_160824C			08/24/16 16:13	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: **LCS-2_160824B**		Laboratory Control Sample				Run: BAL3_160824C			08/24/16 16:13	
Solids, Total Dissolved TDS @ 180 C		1110	mg/L	11	100	90	110			
Lab ID: **T16080082-003A DUP**		Sample Duplicate				Run: BAL3_160824C			08/24/16 16:16	
Solids, Total Dissolved TDS @ 180 C		6680	mg/L	100				1.1	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: ATT1_160825A	
Lab ID: **CCV-F2**		Continuing Calibration Verification Standard							08/25/16 15:26	
Fluoride		1.97	mg/L	0.10	99	90	110			
Method: **A4500-F C**									Batch: R69456	
Lab ID: **LCS-F-3911**		Laboratory Control Sample				Run: ATT1_160825A			08/25/16 13:21	
Fluoride		5.10	mg/L	0.10	100	90	110			
Lab ID: **MBLK**		Method Blank				Run: ATT1_160825A			08/25/16 13:28	
Fluoride		0.02	mg/L	0.002						
Lab ID: **T16080082-001ADUP**		Sample Duplicate				Run: ATT1_160825A			08/25/16 13:39	
Fluoride		0.210	mg/L	0.10				0.0	10	
Lab ID: **T16080082-001AMS**		Sample Matrix Spike				Run: ATT1_160825A			08/25/16 13:42	
Fluoride		5.17	mg/L	0.10	97	90	110			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: ATT1_160824A	
Lab ID: **ICV/LCS-PH-3840**	Initial Calibration Verification Standard								08/24/16 13:01	
pH		7.0	s.u.	0.1	100	98	102			
Method: **A4500-H B**									Batch: R69430	
Lab ID: **ICV1-PH12_3890**	Initial Calibration Verification Standard					Run: ATT1_160824A			08/24/16 12:53	
pH		12	s.u.	0.1	100	99	101			
Lab ID: **ICV2-PH2_3594**	Initial Calibration Verification Standard					Run: ATT1_160824A			08/24/16 12:57	
pH		2.0	s.u.	0.1	101	95	105			
Lab ID: **T16080082-002ADUP**	Sample Duplicate					Run: ATT1_160824A			08/24/16 15:04	
pH		6.2	s.u.	0.1				0.5	3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP102-CS_160825B	
Lab ID: Initial Calib Verif	5	Initial Calibration Verification Standard							08/25/16 13:49	
Boron		0.981	mg/L	0.050	98	95	105			
Calcium		48.8	mg/L	1.0	98	95	105			
Magnesium		50.3	mg/L	1.0	101	95	105			
Potassium		49.9	mg/L	1.0	100	95	105			
Sodium		50.7	mg/L	1.0	101	95	105			
Lab ID: Cont Calib Blank	5	Continuing Calibration Blank							08/25/16 13:51	
Boron		0.0127	mg/L	0.050						
Calcium		-0.00680	mg/L	1.0						
Magnesium		0.00633	mg/L	1.0						
Potassium		0.00469	mg/L	1.0						
Sodium		0.00335	mg/L	1.0						
Method: E200.7									Batch: R69457	
Lab ID: IPC	5	Initial Precision and Recovery				Run: ICP102-CS_160825B			08/25/16 13:55	
Boron		0.970	mg/L	0.050	97	95	105			
Calcium		48.5	mg/L	1.0	97	95	105			
Magnesium		50.4	mg/L	1.0	101	95	105			
Potassium		48.6	mg/L	1.0	97	95	105			
Sodium		49.4	mg/L	1.0	99	95	105			
Lab ID: LCS-160824	5	Laboratory Control Sample				Run: ICP102-CS_160825B			08/25/16 14:00	
Calcium		48.8	mg/L	1.0	98	85	115			
Magnesium		50.3	mg/L	1.0	101	85	115			
Potassium		49.0	mg/L	1.0	98	85	115			
Sodium		50.1	mg/L	1.0	100	85	115			
Boron		0.983	mg/L	0.050	97	85	115			
Lab ID: MB-160824	5	Method Blank				Run: ICP102-CS_160825B			08/25/16 14:02	
Calcium		ND	mg/L	0.08						
Magnesium		0.008	mg/L	0.004						
Potassium		0.004	mg/L	0.002						
Sodium		ND	mg/L	0.02						
Boron		0.01	mg/L	0.001						
Lab ID: T16080082-003ASD	5	Serial Dilution				Run: ICP102-CS_160825B			08/25/16 14:37	
Calcium		712	mg/L	5.0		0	0	2.7	10	
Magnesium		170	mg/L	5.0		0	0	1.0	10	
Potassium		51.6	mg/L	5.0		0	0	11	10	R
Sodium		1050	mg/L	5.0		0	0	0.9	10	
Boron		2.87	mg/L	1.2		0	0	1.2	10	
Lab ID: T16080082-003AMS	5	Sample Matrix Spike				Run: ICP102-CS_160825B			08/25/16 14:38	
Calcium		925	mg/L	1.0	93	70	130			
Magnesium		405	mg/L	1.0	93	70	130			
Potassium		330	mg/L	1.0	109	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**										Batch: R69457
Lab ID: **T16080082-003AMS**	5	Sample Matrix Spike				Run: ICP102-CS_160825B			08/25/16 14:38	
Sodium		1290	mg/L	1.0		70	130			A
Boron		7.79	mg/L	0.25	98	70	130			
Lab ID: **T16080082-003AMSD**	5	Sample Matrix Spike Duplicate				Run: ICP102-CS_160825B			08/25/16 14:40	
Calcium		924	mg/L	1.0	92	70	130	0.1	20	
Magnesium		404	mg/L	1.0	93	70	130	0.2	20	
Potassium		332	mg/L	1.0	110	70	130	0.4	20	
Sodium		1290	mg/L	1.0		70	130	0.2	20	A
Boron		7.79	mg/L	0.25	98	70	130	0.0	20	
Method: **E200.7**										Analytical Run: ICP102-CS_160826C
Lab ID: **Initial Calib Verif**		Initial Calibration Verification Standard							08/26/16 14:59	
Boron		0.978	mg/L	0.050	98	95	105			
Lab ID: **Cont Calib Blank**		Continuing Calibration Blank							08/26/16 15:01	
Boron		0.0215	mg/L	0.050						
Method: **E200.7**										Batch: R69477
Lab ID: **IPC**		Initial Precision and Recovery				Run: ICP102-CS_160826C			08/26/16 15:05	
Boron		0.946	mg/L	0.050	95	95	105			
Lab ID: **LCS-160826**		Laboratory Control Sample				Run: ICP102-CS_160826C			08/26/16 15:12	
Boron		0.955	mg/L	0.050	93	85	115			
Lab ID: **MB-160826**		Method Blank				Run: ICP102-CS_160826C			08/26/16 15:14	
Boron		0.02	mg/L	0.001						
Lab ID: **T16080091-001ASD**		Serial Dilution				Run: ICP102-CS_160826C			08/26/16 15:21	
Boron		0.566	mg/L	0.25		0	0	5.7	10	
Lab ID: **T16080091-001AMS**		Sample Matrix Spike				Run: ICP102-CS_160826C			08/26/16 15:23	
Boron		1.52	mg/L	0.050	98	70	130			
Lab ID: **T16080091-001AMSD**		Sample Matrix Spike Duplicate				Run: ICP102-CS_160826C			08/26/16 15:32	
Boron		1.52	mg/L	0.050	99	70	130	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: SUB-B266359	
Lab ID: **ICV**	2	Continuing Calibration Verification Standard							08/31/16 09:21	
Beryllium		1.23	mg/L	0.010	99	95	105			
Lithium		1.23	mg/L	0.10	98	95	105			
Method: **E200.7**									Batch: B_102226	
Lab ID: **MB-102226**	2	Method Blank				Run: SUB-B266359			09/01/16 07:48	
Beryllium		ND	mg/L	0.0001						
Lithium		0.004	mg/L	0.002						
Lab ID: **LCS-102226**	2	Laboratory Control Sample				Run: SUB-B266359			09/01/16 07:52	
Beryllium		0.261	mg/L	0.010	104	85	115			
Lithium		0.518	mg/L	0.10	103	85	115			
Lab ID: **B16082684-001CMS3**	2	Sample Matrix Spike				Run: SUB-B266359			09/01/16 08:13	
Beryllium		0.262	mg/L	0.0010	105	70	130			
Lithium		0.576	mg/L	0.10	103	70	130			
Lab ID: **B16082684-001CMSD**	2	Sample Matrix Spike Duplicate				Run: SUB-B266359			09/01/16 08:16	
Beryllium		0.257	mg/L	0.0010	103	70	130	2.0	20	
Lithium		0.564	mg/L	0.10	100	70	130	2.1	20	
Lab ID: **T16080082-007B**	2	Sample Matrix Spike				Run: SUB-B266359			09/01/16 09:14	
Beryllium		0.252	mg/L	0.0010	101	70	130			
Lithium		1.37	mg/L	0.10	97	70	130			
Lab ID: **T16080082-007B**	2	Sample Matrix Spike Duplicate				Run: SUB-B266359			09/01/16 09:18	
Beryllium		0.256	mg/L	0.0010	102	70	130	1.4	20	
Lithium		1.39	mg/L	0.10	101	70	130	1.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: SUB-B266370	
Lab ID: QCS	10	Initial Calibration Verification Standard							08/31/16 11:25	
Antimony		0.0488	mg/L	0.050	98	90	110			
Arsenic		0.0499	mg/L	0.0050	100	90	110			
Barium		0.0507	mg/L	0.10	101	90	110			
Cadmium		0.0246	mg/L	0.0010	98	90	110			
Chromium		0.0502	mg/L	0.010	100	90	110			
Cobalt		0.0503	mg/L	0.010	101	90	110			
Lead		0.0499	mg/L	0.010	100	90	110			
Molybdenum		0.0483	mg/L	0.0050	97	90	110			
Selenium		0.0490	mg/L	0.0050	98	90	110			
Thallium		0.0498	mg/L	0.10	100	90	110			
Method: E200.8									Batch: B_102226	
Lab ID: MB-102226	10	Method Blank				Run: SUB-B266370			08/31/16 12:24	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Barium		ND	mg/L	9E-05						
Cadmium		ND	mg/L	2E-05						
Chromium		0.0003	mg/L	4E-05						
Cobalt		2E-05	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: LCS-102226	10	Laboratory Control Sample				Run: SUB-B266370			08/31/16 14:04	
Antimony		0.495	mg/L	0.0050	99	85	115			
Arsenic		0.489	mg/L	0.0010	98	85	115			
Barium		0.504	mg/L	0.010	101	85	115			
Cadmium		0.254	mg/L	0.0010	102	85	115			
Chromium		0.491	mg/L	0.0010	98	85	115			
Cobalt		0.492	mg/L	0.0010	98	85	115			
Lead		0.496	mg/L	0.0010	99	85	115			
Molybdenum		0.491	mg/L	0.0050	98	85	115			
Selenium		0.484	mg/L	0.0050	97	85	115			
Thallium		0.488	mg/L	0.0010	98	85	115			
Lab ID: B16082684-001CMS3	10	Sample Matrix Spike				Run: SUB-B266370			08/31/16 14:07	
Antimony		0.501	mg/L	0.0010	100	70	130			
Arsenic		0.495	mg/L	0.0010	99	70	130			
Barium		0.561	mg/L	0.050	100	70	130			
Cadmium		0.251	mg/L	0.0010	100	70	130			
Chromium		0.488	mg/L	0.0050	97	70	130			
Cobalt		0.477	mg/L	0.0050	95	70	130			
Lead		0.482	mg/L	0.0010	96	70	130			
Molybdenum		0.500	mg/L	0.0010	100	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: B_102226
Lab ID: **B16082684-001CMS3**	10	Sample Matrix Spike				Run: SUB-B266370				08/31/16 14:07
Selenium		0.482	mg/L	0.0010	96	70	130			
Thallium		0.476	mg/L	0.00050	95	70	130			
Lab ID: **B16082684-001CMSD**	10	Sample Matrix Spike Duplicate				Run: SUB-B266370				08/31/16 14:09
Antimony		0.507	mg/L	0.0010	101	70	130	1.2	20	
Arsenic		0.495	mg/L	0.0010	99	70	130	0.0	20	
Barium		0.574	mg/L	0.050	102	70	130	2.3	20	
Cadmium		0.251	mg/L	0.0010	100	70	130	0.0	20	
Chromium		0.493	mg/L	0.0050	98	70	130	0.9	20	
Cobalt		0.482	mg/L	0.0050	96	70	130	1.0	20	
Lead		0.490	mg/L	0.0010	98	70	130	1.7	20	
Molybdenum		0.507	mg/L	0.0010	101	70	130	1.5	20	
Selenium		0.484	mg/L	0.0010	97	70	130	0.4	20	
Thallium		0.483	mg/L	0.00050	97	70	130	1.5	20	
Lab ID: **T16080082-007B**	10	Sample Matrix Spike				Run: SUB-B266370				08/31/16 14:54
Antimony		0.510	mg/L	0.0010	102	70	130			
Arsenic		0.502	mg/L	0.0010	100	70	130			
Barium		0.572	mg/L	0.050	106	70	130			
Cadmium		0.261	mg/L	0.0010	104	70	130			
Chromium		0.513	mg/L	0.0050	103	70	130			
Cobalt		0.520	mg/L	0.0050	103	70	130			
Lead		0.513	mg/L	0.0010	103	70	130			
Molybdenum		0.500	mg/L	0.0010	100	70	130			
Selenium		0.484	mg/L	0.0021	97	70	130			
Thallium		0.497	mg/L	0.00050	99	70	130			
Lab ID: **T16080082-007B**	10	Sample Matrix Spike Duplicate				Run: SUB-B266370				08/31/16 14:57
Antimony		0.510	mg/L	0.0010	102	70	130	0.2	20	
Arsenic		0.499	mg/L	0.0010	99	70	130	0.6	20	
Barium		0.561	mg/L	0.050	104	70	130	1.9	20	
Cadmium		0.258	mg/L	0.0010	103	70	130	1.0	20	
Chromium		0.498	mg/L	0.0050	100	70	130	2.9	20	
Cobalt		0.504	mg/L	0.0050	100	70	130	3.0	20	
Lead		0.501	mg/L	0.0010	100	70	130	2.5	20	
Molybdenum		0.504	mg/L	0.0010	101	70	130	0.7	20	
Selenium		0.479	mg/L	0.0021	96	70	130	0.9	20	
Thallium		0.486	mg/L	0.00050	97	70	130	2.2	20	
Method: **E200.8**										Analytical Run: SUB-B266668
Lab ID: **QCS**	2	Initial Calibration Verification Standard								09/07/16 11:45
Lead		0.0498	mg/L	0.010	100	90	110			
Thallium		0.0499	mg/L	0.10	100	90	110			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: SUB-B266327	
Lab ID: **ICV**		Initial Calibration Verification Standard							08/30/16 15:04	
Mercury		0.0020	mg/L	0.00010	102	90	110			
Method: **E245.1**									Batch: B_102237	
Lab ID: **MB-102237**		Method Blank				Run: SUB-B266327			08/30/16 15:30	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-102237**		Laboratory Control Sample				Run: SUB-B266327			08/30/16 15:32	
Mercury		0.0020	mg/L	0.00010	98	85	115			
Lab ID: **T16080082-002B**		Sample Matrix Spike				Run: SUB-B266327			08/30/16 15:38	
Mercury		0.0018	mg/L	0.00010	89	70	130			
Lab ID: **T16080082-002B**		Sample Matrix Spike Duplicate				Run: SUB-B266327			08/30/16 15:40	
Mercury		0.0018	mg/L	0.00010	88	70	130	0.4	30	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC1_160824A	
Lab ID: **ICV/LCS-W-3770**	2	Initial Calibration Verification Standard							08/24/16 17:38	
Chloride		99.9	mg/L	2.0	100	90	110			
Sulfate		102	mg/L	2.0	102	90	110			
Method: **E300.0**									Batch: R69432	
Lab ID: **ICB**	2	Method Blank				Run: IC1_160824A			08/24/16 17:57	
Chloride		0.8	mg/L	0.05						
Sulfate		ND	mg/L	0.03						
Lab ID: **LFB-3911**	2	Laboratory Fortified Blank				Run: IC1_160824A			08/24/16 18:17	
Chloride		24.0	mg/L	1.0	93	90	110			
Sulfate		24.8	mg/L	1.0	99	90	110			
Lab ID: **T16080082-002AMS**	2	Sample Matrix Spike				Run: IC1_160824A			08/24/16 23:28	
Chloride		3660	mg/L	50	95	90	110			
Sulfate		3320	mg/L	50	100	90	110			
Lab ID: **T16080082-002AMSD**	2	Sample Matrix Spike Duplicate				Run: IC1_160824A			08/24/16 23:47	
Chloride		3710	mg/L	50	99	90	110	1.4	10	
Sulfate		3360	mg/L	50	103	90	110	1.3	10	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E903.0**										Batch: RA226-0138
Lab ID: **MB-RA226-0138**	3	Method Blank				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		0.0008	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: **LCS-RA226-0138**		Laboratory Control Sample				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		55	pCi/L		104	80	120			
Lab ID: **T16080104-002CMS**		Sample Matrix Spike				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		110	pCi/L		88	70	130			
Lab ID: **T16080104-002CMSD**		Sample Matrix Spike Duplicate				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		110	pCi/L		87	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080082

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: C_RA228-5306
Lab ID: **LCS-228-RA228-5306**		Laboratory Control Sample				Run: SUB-C214943				09/06/16 13:48
Radium 228		8.3	pCi/L		92	80	120			
Lab ID: **MB-228-RA228-5306**	3	Method Blank				Run: SUB-C214943				09/06/16 13:48
Radium 228		0.3	pCi/L							U
Radium 228 precision (±)		0.9	pCi/L							
Radium 228 MDC		2	pCi/L							
Lab ID: **C16081088-004BMS**		Sample Matrix Spike				Run: SUB-C214943				09/06/16 13:48
Radium 228		20	pCi/L		82	70	130			
Lab ID: **C16081088-004BMSD**		Sample Matrix Spike Duplicate				Run: SUB-C214943				09/06/16 13:48
Radium 228		21	pCi/L		86	70	130	4.9	53.9	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

Barium Recovery

Per NELAC requirement EL-V1M6-2009 1.7.2.3.c, Energy Laboratories is reporting the sample specific Barium Sulfate carrier recovery.

T16080082	Sample	Recovery	
	T16080082-001C	95.03%	
	T16080082-001C	109.32%	
	T16080082-002C	96.63%	
	T16080082-002C	103.30%	
	T16080082-003C	96.09%	
	T16080082-003C	101.55%	
	T16080082-004C	97.09%	
	T16080082-004C	98.93%	
	T16080082-005C	98.22%	
	T16080082-005C	109.71%	
	T16080082-006C	93.61%	
	T16080082-006C	105.63%	
	T16080082-007C	95.74%	
	T16080082-007C	111.26%	
	T16080082-008C	89.34%	
	T16080082-008C	98.06%	

9/20/2016 4:00:59 PM

Work Order Receipt Checklist

Texas Municipal Power Agency T16080082

Login completed by:	Alisha D. Griffin	Date Received:	8/23/2016
Reviewed by:	BL2000\ssuchar	Received by:	sas
Reviewed Date:	8/25/2016	Carrier name:	Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

pH check of applicable preserved fractions acceptable (Lot#3931). Receipt temperature checked with Thermo 1210: Cooler #T1106 - read temperature = 0.6°C; no corrections. Cooler #T1070 - read temperature = 0.6°C; no corrections. ADG 160824 11:18

Per Brian G, Wants logged in per history (Schedule 1 & 2 as on COC), but additional analysis of Ca, Mg, Na, K, SO4, Cl. ADG 160824 11:19

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: AMEC Foster Wheeler	Project Name, PWS, Permit, Etc.: TMPA	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address:	Contact Name: Morriss Barney / Greg Seifert Phone/Fax:	Email:	Sampler: (Please Print) Brian Gieselman
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

ANALYSIS REQUESTED

Schedule 1 #2

SEE ATTACHED

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:
T1106 = 0.6°C
T1070 = 0.6°C
Therm 1210, No correct.
T16080082

Shipped by: Hand
Cooler ID(s): T1106 T1070
Receipt Temp: _____ °C
On Ice: (Y) N
Custody Seal: On Bottle Y (N) / On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX		LABORATORY USE ONLY
1	SSP/AP MW-1	8/23/16	1028	W	X	-001
2	SSP MW-2		1125		X	-002
3	SSP MW-3		1220		X	-003
4	SSP MW-4		1327		X	-004
5	AP PZ-1		1437		X	-005
6	AP PZ-2		1522		X	-006
7	DUP-1		—		X	-006
8	EQBK 8-23		1624		X	-007
9						
10						

Custody Record MUST be Signed

	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
1	Brian Gieselman	8/23/16 @1715	Brian Gieselman			
2						

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: Steve Suchar — Date/Time: 8/23/16 17:15 — Signature: Stephen A. Suchar

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

September 21, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: T16080097 Quote ID: T3094

Project Name: CCRR

Energy Laboratories Inc. College Station TX received the following 8 samples for Texas Municipal Power Agency on 8/24/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
T16080097-001	AP MW-3	08/24/16 9:46	08/24/16	Groundwater	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride E300.0 Anions Cations by ICP pH Metals Digestion by EPA 200.2 Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
T16080097-003	AP MW-1D	08/24/16 12:13	08/24/16	Groundwater	Same As Above
T16080097-004	AP MW-5	08/24/16 14:12	08/24/16	Groundwater	Same As Above
T16080097-005	AP MW-4	08/24/16 14:57	08/24/16	Groundwater	Same As Above
T16080097-007	Dup-2	08/24/16 0:00	08/24/16	Groundwater	Same As Above
T16080097-008	EQBK 8-24	08/24/16 15:18	08/24/16	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 415 Graham Rd., College Station, TX 77845-9660, unless otherwise noted.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: T16080097

Report Date: 09/21/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080097-001
Client Sample ID: AP MW-3

Report Date: 09/21/16
Collection Date: 08/24/16 09:46
DateReceived: 08/24/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	08/26/16 12:07 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	1400	mg/L		10		A2540 C	08/26/16 09:50 / rda
MAJOR IONS							
Chloride	128	mg/L	D	10		E300.0	08/25/16 22:25 / pwh
Fluoride	0.2	mg/L		0.1		A4500-F C	08/25/16 14:32 / pwh
Sulfate	731	mg/L	D	10		E300.0	08/25/16 22:25 / pwh
Calcium	123	mg/L		1		E200.7	08/26/16 15:51 / jtr
Magnesium	19	mg/L		1		E200.7	08/26/16 15:51 / jtr
Potassium	14	mg/L		1		E200.7	08/26/16 15:51 / jtr
Sodium	221	mg/L		1		E200.7	08/26/16 15:51 / jtr
Boron	3.63	mg/L		0.05		E200.7	08/26/16 15:51 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 13:54 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 13:54 / eli-b
Barium	0.03	mg/L		0.01		E200.8	09/01/16 13:54 / eli-b
Beryllium	0.003	mg/L		0.001		E200.8	09/01/16 13:54 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 13:54 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/01/16 13:54 / eli-b
Cobalt	0.05	mg/L		0.02		E200.8	09/01/16 13:54 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 13:54 / eli-b
Lithium	0.06	mg/L		0.01		E200.7	09/01/16 17:26 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	09/01/16 13:54 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 13:54 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 13:54 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:33 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	3.5	pCi/L				RA-05	09/06/16 10:35 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	09/06/16 10:35 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	09/06/16 10:35 / eli-ca
Radium 226 + Radium 228	7.54	pCi/L				A7500-RA	09/20/16 16:20 / sas
Radium 226 + Radium 228 precision (±)	1.19	pCi/L				A7500-RA	09/20/16 16:20 / sas
Total Radium as Ra226	4.0	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	0.60	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.19	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080097-003
Client Sample ID: AP MW-1D

Report Date: 09/21/16
Collection Date: 08/24/16 12:13
DateReceived: 08/24/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	08/26/16 12:20 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	1440	mg/L		20		A2540 C	08/26/16 09:51 / rda
MAJOR IONS							
Chloride	221	mg/L	D	10		E300.0	08/25/16 23:42 / pwh
Fluoride	0.7	mg/L		0.1		A4500-F C	08/25/16 14:50 / pwh
Sulfate	621	mg/L	D	10		E300.0	08/25/16 23:42 / pwh
Calcium	78	mg/L		1		E200.7	08/26/16 16:07 / jtr
Magnesium	14	mg/L		1		E200.7	08/26/16 16:07 / jtr
Potassium	15	mg/L		1		E200.7	08/26/16 16:07 / jtr
Sodium	326	mg/L		1		E200.7	08/26/16 16:07 / jtr
Boron	4.81	mg/L		0.05		E200.7	08/26/16 16:07 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 13:59 / eli-b
Arsenic	0.01	mg/L		0.01		E200.8	09/01/16 13:59 / eli-b
Barium	0.02	mg/L		0.01		E200.8	09/01/16 13:59 / eli-b
Beryllium	ND	mg/L		0.001		E200.8	09/01/16 13:59 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 13:59 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/01/16 13:59 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	09/01/16 13:59 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 13:59 / eli-b
Lithium	0.04	mg/L		0.01		E200.7	09/01/16 18:04 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	09/01/16 13:59 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 13:59 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 13:59 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:41 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	2.7	pCi/L				RA-05	09/06/16 10:35 / eli-ca
Radium 228 precision (±)	0.91	pCi/L				RA-05	09/06/16 10:35 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	09/06/16 10:35 / eli-ca
Radium 226 + Radium 228	3.83	pCi/L				A7500-RA	09/20/16 16:20 / sas
Radium 226 + Radium 228 precision (±)	0.957	pCi/L				A7500-RA	09/20/16 16:20 / sas
Total Radium as Ra226	1.2	pCi/L				E903.0	09/02/16 15:09 / jjc
Total Radium as Ra226 precision (±)	0.30	pCi/L				E903.0	09/02/16 15:09 / jjc
Total Radium as Ra226 MDC	0.18	pCi/L				E903.0	09/02/16 15:09 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080097-004
Client Sample ID: AP MW-5

Report Date: 09/21/16
Collection Date: 08/24/16 14:12
DateReceived: 08/24/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	3.7	s.u.	H	0.1		A4500-H B	08/26/16 12:23 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	4770	mg/L		40		A2540 C	08/26/16 09:51 / rda
MAJOR IONS							
Chloride	469	mg/L	D	20		E300.0	08/26/16 00:41 / pwh
Fluoride	1.6	mg/L		0.1		A4500-F C	08/25/16 14:57 / pwh
Sulfate	2960	mg/L	D	20		E300.0	08/26/16 00:41 / pwh
Calcium	468	mg/L		1		E200.7	08/26/16 16:12 / jtr
Magnesium	110	mg/L		1		E200.7	08/26/16 16:12 / jtr
Potassium	48	mg/L		1		E200.7	08/26/16 16:12 / jtr
Sodium	663	mg/L		1		E200.7	08/26/16 16:12 / jtr
Boron	3.4	mg/L	D	0.2		E200.7	08/26/16 16:12 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 14:02 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 14:02 / eli-b
Barium	0.03	mg/L		0.01		E200.8	09/01/16 14:02 / eli-b
Beryllium	0.09	mg/L		0.001		E200.8	09/01/16 14:02 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 14:02 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/01/16 14:02 / eli-b
Cobalt	0.2	mg/L		0.02		E200.8	09/01/16 14:02 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 14:02 / eli-b
Lithium	0.6	mg/L		0.01		E200.7	09/01/16 18:08 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	09/01/16 14:02 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 14:02 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 14:02 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:43 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.2	pCi/L	U			RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	0.99	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	5.96	pCi/L				A7500-RA	09/20/16 16:20 / sas
Radium 226 + Radium 228 precision (±)	1.20	pCi/L				A7500-RA	09/20/16 16:20 / sas
Total Radium as Ra226	4.8	pCi/L				E903.0	09/02/16 15:09 / jjc
Total Radium as Ra226 precision (±)	0.67	pCi/L				E903.0	09/02/16 15:09 / jjc
Total Radium as Ra226 MDC	0.18	pCi/L				E903.0	09/02/16 15:09 / jjc

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080097-005
Client Sample ID: AP MW-4

Report Date: 09/21/16
Collection Date: 08/24/16 14:57
DateReceived: 08/24/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	08/26/16 12:28 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	4140	mg/L		40		A2540 C	08/26/16 09:51 / rda
MAJOR IONS							
Chloride	485	mg/L	D	20		E300.0	08/26/16 01:00 / pwh
Fluoride	0.1	mg/L		0.1		A4500-F C	08/25/16 15:03 / pwh
Sulfate	2310	mg/L	D	20		E300.0	08/26/16 01:00 / pwh
Calcium	497	mg/L		1		E200.7	08/26/16 16:14 / jtr
Magnesium	115	mg/L		1		E200.7	08/26/16 16:14 / jtr
Potassium	55	mg/L		1		E200.7	08/26/16 16:14 / jtr
Sodium	520	mg/L		1		E200.7	08/26/16 16:14 / jtr
Boron	2.1	mg/L	D	0.2		E200.7	08/26/16 16:14 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 14:04 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 14:04 / eli-b
Barium	0.03	mg/L		0.01		E200.8	09/01/16 14:04 / eli-b
Beryllium	ND	mg/L		0.001		E200.8	09/01/16 14:04 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 14:04 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/01/16 14:04 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	09/01/16 14:04 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 14:04 / eli-b
Lithium	0.9	mg/L		0.01		E200.7	09/01/16 18:11 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	09/01/16 14:04 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 14:04 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 14:04 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:44 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	0.57	pCi/L	U			RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	3.67	pCi/L				A7500-RA	09/20/16 16:20 / sas
Radium 226 + Radium 228 precision (±)	1.15	pCi/L				A7500-RA	09/20/16 16:20 / sas
Total Radium as Ra226	3.1	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	0.51	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.18	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080097-007
Client Sample ID: Dup-2

Report Date: 09/21/16
Collection Date: 08/24/16
DateReceived: 08/24/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	08/26/16 12:36 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	1440	mg/L		20		A2540 C	08/26/16 09:52 / rda
MAJOR IONS							
Chloride	223	mg/L	D	10		E300.0	08/26/16 01:39 / pwh
Fluoride	0.6	mg/L		0.1		A4500-F C	08/25/16 15:14 / pwh
Sulfate	623	mg/L	D	10		E300.0	08/26/16 01:39 / pwh
Calcium	79	mg/L		1		E200.7	08/26/16 16:17 / jtr
Magnesium	14	mg/L		1		E200.7	08/26/16 16:17 / jtr
Potassium	14	mg/L		1		E200.7	08/26/16 16:17 / jtr
Sodium	327	mg/L		1		E200.7	08/26/16 16:17 / jtr
Boron	4.8	mg/L	D	0.1		E200.7	08/26/16 16:17 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 14:09 / eli-b
Arsenic	0.01	mg/L		0.01		E200.8	09/01/16 14:09 / eli-b
Barium	0.03	mg/L		0.01		E200.8	09/01/16 14:09 / eli-b
Beryllium	ND	mg/L		0.001		E200.8	09/01/16 14:09 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 14:09 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/01/16 14:09 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	09/01/16 14:09 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 14:09 / eli-b
Lithium	0.04	mg/L		0.01		E200.7	09/01/16 18:18 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	09/01/16 14:09 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 14:09 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 14:09 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:48 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	2.7	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	4.40	pCi/L				A7500-RA	09/20/16 16:20 / sas
Radium 226 + Radium 228 precision (±)	1.13	pCi/L				A7500-RA	09/20/16 16:20 / sas
Total Radium as Ra226	1.7	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	0.40	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.24	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080097-008
Client Sample ID: EQBK 8-24

Report Date: 09/21/16
Collection Date: 08/24/16 15:18
DateReceived: 08/24/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	08/26/16 12:40 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/26/16 09:52 / rda
MAJOR IONS							
Chloride	ND	mg/L		1		E300.0	08/26/16 01:59 / pwh
Fluoride	ND	mg/L		0.1		A4500-F C	08/25/16 15:22 / pwh
Sulfate	ND	mg/L		1		E300.0	08/26/16 01:59 / pwh
Calcium	ND	mg/L		1		E200.7	08/26/16 16:20 / jtr
Magnesium	ND	mg/L		1		E200.7	08/26/16 16:20 / jtr
Potassium	ND	mg/L		1		E200.7	08/26/16 16:20 / jtr
Sodium	ND	mg/L		1		E200.7	08/26/16 16:20 / jtr
Boron	ND	mg/L		0.05		E200.7	08/26/16 16:20 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 14:12 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 14:12 / eli-b
Barium	ND	mg/L		0.01		E200.8	09/01/16 14:12 / eli-b
Beryllium	ND	mg/L		0.001		E200.8	09/01/16 14:12 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 14:12 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/01/16 14:12 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	09/01/16 14:12 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 14:12 / eli-b
Lithium	ND	mg/L		0.01		E200.7	09/01/16 18:22 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	09/01/16 14:12 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 14:12 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 14:12 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:50 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.0	pCi/L	U			RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	0.84	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	1.11	pCi/L				A7500-RA	09/20/16 16:20 / sas
Radium 226 + Radium 228 precision (±)	0.856	pCi/L				A7500-RA	09/20/16 16:20 / sas
Total Radium as Ra226	0.1	pCi/L	U			E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	0.16	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.23	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C									Batch: TDS160826A	
Lab ID: MB-1_160826A	Method Blank					Run: BAL3_160826B			08/26/16 09:48	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: LCS-2_160826A	Laboratory Control Sample					Run: BAL3_160826B			08/26/16 09:48	
Solids, Total Dissolved TDS @ 180 C		1100	mg/L	11	99	90	110			
Lab ID: T16080097-003A DUP	Sample Duplicate					Run: BAL3_160826B			08/26/16 09:51	
Solids, Total Dissolved TDS @ 180 C		1440	mg/L	20				0.0	5	
Method: A2540 C									Batch: TDS160829A	
Lab ID: MB-1_160829A	Method Blank					Run: BAL3_160829A			08/29/16 15:23	
Solids, Total Dissolved TDS @ 180 C		6	mg/L	5						
Lab ID: LCS-2_160829A	Laboratory Control Sample					Run: BAL3_160829A			08/29/16 15:23	
Solids, Total Dissolved TDS @ 180 C		1120	mg/L	11	100	90	110			
Lab ID: T16080097-006A DUP	Sample Duplicate					Run: BAL3_160829A			08/29/16 15:23	
Solids, Total Dissolved TDS @ 180 C		4000	mg/L	100				0.0	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: ATT1_160825A	
Lab ID: **CCV-F2**		Continuing Calibration Verification Standard							08/25/16 15:26	
Fluoride		1.97	mg/L	0.10	99	90	110			
Method: **A4500-F C**									Batch: R69456	
Lab ID: **LCS-F-3911**		Laboratory Control Sample				Run: ATT1_160825A			08/25/16 13:21	
Fluoride		5.10	mg/L	0.10	100	90	110			
Lab ID: **MBLK**		Method Blank				Run: ATT1_160825A			08/25/16 13:28	
Fluoride		0.02	mg/L	0.002						
Lab ID: **T16080097-002ADUP**		Sample Duplicate				Run: ATT1_160825A			08/25/16 14:42	
Fluoride		0.270	mg/L	0.10				0.0	10	
Lab ID: **T16080097-002AMS**		Sample Matrix Spike				Run: ATT1_160825A			08/25/16 14:47	
Fluoride		5.29	mg/L	0.10	98	90	110			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: ATT1_160826A	
Lab ID: **ICV/LCS-PH-3840**	Initial Calibration Verification Standard								08/26/16 09:04	
pH		7.0	s.u.	0.1	100	98	102			
Lab ID: **ICV/LCS-PH-3840**	Initial Calibration Verification Standard								08/26/16 12:52	
pH		7.0	s.u.	0.1	100	98	102			
Method: **A4500-H B**									Batch: R69474	
Lab ID: **ICV1-PH12_3890**	Initial Calibration Verification Standard					Run: ATT1_160826A			08/26/16 08:58	
pH		12	s.u.	0.1	99	99	101			
Lab ID: **ICV2-PH2_3594**	Initial Calibration Verification Standard					Run: ATT1_160826A			08/26/16 09:00	
pH		2.1	s.u.	0.1	105	95	105			
Lab ID: **T16080097-001ADUP**	Sample Duplicate					Run: ATT1_160826A			08/26/16 12:11	
pH		6.0	s.u.	0.1				0.5	3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP102-CS_160826C	
Lab ID: Initial Calib Verif	5	Initial Calibration Verification Standard							08/26/16 14:59	
Boron		0.978	mg/L	0.050	98	95	105			
Calcium		49.3	mg/L	1.0	99	95	105			
Magnesium		49.8	mg/L	1.0	100	95	105			
Potassium		48.7	mg/L	1.0	97	95	105			
Sodium		48.2	mg/L	1.0	96	95	105			
Lab ID: Cont Calib Blank	5	Continuing Calibration Blank							08/26/16 15:01	
Boron		0.0215	mg/L	0.050						
Calcium		0.00341	mg/L	1.0						
Magnesium		0.00135	mg/L	1.0						
Potassium		0.00253	mg/L	1.0						
Sodium		0.425	mg/L	1.0						
Method: E200.7									Batch: R69477	
Lab ID: IPC	5	Initial Precision and Recovery				Run: ICP102-CS_160826C			08/26/16 15:05	
Boron		0.946	mg/L	0.050	95	95	105			
Calcium		47.3	mg/L	1.0	95	95	105			
Magnesium		48.2	mg/L	1.0	96	95	105			
Potassium		47.7	mg/L	1.0	95	95	105			
Sodium		47.3	mg/L	1.0	95	95	105			
Lab ID: LCS-160826	5	Laboratory Control Sample				Run: ICP102-CS_160826C			08/26/16 15:12	
Calcium		47.7	mg/L	1.0	95	85	115			
Magnesium		48.2	mg/L	1.0	96	85	115			
Potassium		47.9	mg/L	1.0	96	85	115			
Sodium		46.9	mg/L	1.0	93	85	115			
Boron		0.955	mg/L	0.050	93	85	115			
Lab ID: MB-160826	5	Method Blank				Run: ICP102-CS_160826C			08/26/16 15:14	
Calcium		ND	mg/L	0.09						
Magnesium		0.006	mg/L	0.004						
Potassium		0.003	mg/L	0.002						
Sodium		0.4	mg/L	0.2						
Boron		0.02	mg/L	0.001						
Lab ID: T16080097-002ASD	5	Serial Dilution				Run: ICP102-CS_160826C			08/26/16 16:01	
Calcium		340	mg/L	2.0		0	0	1.4	10	
Magnesium		66.0	mg/L	2.0		0	0	0.8	10	
Potassium		32.9	mg/L	2.0		0	0	14	10	R
Sodium		568	mg/L	2.0		0	0	3.7	10	
Boron		0.381	mg/L	0.50		0	0		10	
Lab ID: T16080097-002AMS	5	Sample Matrix Spike				Run: ICP102-CS_160826C			08/26/16 16:03	
Calcium		413	mg/L	1.0	77	70	130			
Magnesium		156	mg/L	1.0	89	70	130			
Potassium		147	mg/L	1.0	110	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**										Batch: R69477
Lab ID: **T16080097-002AMS**	5	Sample Matrix Spike				Run: ICP102-CS_160826C			08/26/16 16:03	
Sodium		674	mg/L	1.0		70	130			A
Boron		2.27	mg/L	0.10	97	70	130			
Lab ID: **T16080097-002AMSD**	5	Sample Matrix Spike Duplicate				Run: ICP102-CS_160826C			08/26/16 16:05	
Calcium		417	mg/L	1.0	82	70	130	1.1	20	
Magnesium		157	mg/L	1.0	90	70	130	0.6	20	
Potassium		147	mg/L	1.0	109	70	130	0.4	20	
Sodium		676	mg/L	1.0		70	130	0.3	20	A
Boron		2.29	mg/L	0.10	98	70	130	0.8	20	
Method: **E200.7**										Analytical Run: SUB-B266445
Lab ID: **ICV**		Continuing Calibration Verification Standard							09/01/16 10:04	
Lithium		1.21	mg/L	0.10	97	95	105			
Method: **E200.7**										Batch: B_102271
Lab ID: **MB-102271**		Method Blank				Run: SUB-B266445			09/01/16 17:01	
Lithium		0.004	mg/L	0.002						
Lab ID: **LCS-102271**		Laboratory Control Sample				Run: SUB-B266445			09/01/16 17:05	
Lithium		0.510	mg/L	0.10	101	85	115			
Lab ID: **B16082783-002AMS3**		Sample Matrix Spike				Run: SUB-B266445			09/01/16 17:19	
Lithium		0.514	mg/L	0.10	101	70	130			
Lab ID: **B16082783-002AMSD**		Sample Matrix Spike Duplicate				Run: SUB-B266445			09/01/16 17:22	
Lithium		0.549	mg/L	0.10	108	70	130	6.6	20	
Lab ID: **B16082814-006BMS3**		Sample Matrix Spike				Run: SUB-B266445			09/01/16 19:00	
Lithium		0.734	mg/L	0.10	102	70	130			
Lab ID: **B16082814-006BMSD**		Sample Matrix Spike Duplicate				Run: SUB-B266445			09/01/16 19:04	
Lithium		0.735	mg/L	0.10	103	70	130	0.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: SUB-B266449	
Lab ID: **QCS**	11	Initial Calibration Verification Standard							09/01/16 11:34	
Antimony		0.0485	mg/L	0.050	97	90	110			
Arsenic		0.0524	mg/L	0.0050	105	90	110			
Barium		0.0494	mg/L	0.10	99	90	110			
Beryllium		0.0256	mg/L	0.0010	103	90	110			
Cadmium		0.0251	mg/L	0.0010	100	90	110			
Chromium		0.0511	mg/L	0.010	102	90	110			
Cobalt		0.0522	mg/L	0.010	104	90	110			
Lead		0.0496	mg/L	0.010	99	90	110			
Molybdenum		0.0482	mg/L	0.0050	96	90	110			
Selenium		0.0477	mg/L	0.0050	95	90	110			
Thallium		0.0495	mg/L	0.10	99	90	110			
Method: **E200.8**									Batch: B_102271	
Lab ID: **MB-102271**	11	Method Blank				Run: SUB-B266449			09/01/16 13:41	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Barium		ND	mg/L	9E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		0.0002	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: **LCS-102271**	11	Laboratory Control Sample				Run: SUB-B266449			09/01/16 14:35	
Antimony		0.500	mg/L	0.0050	100	85	115			
Arsenic		0.483	mg/L	0.0010	97	85	115			
Barium		0.488	mg/L	0.010	98	85	115			
Beryllium		0.239	mg/L	0.0010	96	85	115			
Cadmium		0.257	mg/L	0.0010	103	85	115			
Chromium		0.500	mg/L	0.0010	100	85	115			
Cobalt		0.488	mg/L	0.0010	98	85	115			
Lead		0.484	mg/L	0.0010	97	85	115			
Molybdenum		0.498	mg/L	0.0050	100	85	115			
Selenium		0.494	mg/L	0.0050	99	85	115			
Thallium		0.459	mg/L	0.0010	92	85	115			
Lab ID: **B16082783-002AMS3**	11	Sample Matrix Spike				Run: SUB-B266449			09/01/16 14:38	
Antimony		0.516	mg/L	0.0010	103	70	130			
Arsenic		0.528	mg/L	0.0010	103	70	130			
Barium		0.526	mg/L	0.050	100	70	130			
Beryllium		0.234	mg/L	0.0010	94	70	130			
Cadmium		0.256	mg/L	0.0010	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: B_102271
Lab ID: B16082783-002AMS3	11	Sample Matrix Spike				Run: SUB-B266449				09/01/16 14:38
Chromium		0.504	mg/L	0.0050	101	70	130			
Cobalt		0.768	mg/L	0.0050	102	70	130			
Lead		0.494	mg/L	0.0010	99	70	130			
Molybdenum		0.574	mg/L	0.0010	103	70	130			
Selenium		0.532	mg/L	0.0010	101	70	130			
Thallium		0.473	mg/L	0.00050	94	70	130			
Lab ID: B16082783-002AMSD	11	Sample Matrix Spike Duplicate				Run: SUB-B266449				09/01/16 14:40
Antimony		0.510	mg/L	0.0010	102	70	130	1.1	20	
Arsenic		0.525	mg/L	0.0010	102	70	130	0.5	20	
Barium		0.530	mg/L	0.050	100	70	130	0.6	20	
Beryllium		0.234	mg/L	0.0010	94	70	130	0.1	20	
Cadmium		0.256	mg/L	0.0010	102	70	130	0.0	20	
Chromium		0.512	mg/L	0.0050	102	70	130	1.5	20	
Cobalt		0.767	mg/L	0.0050	102	70	130	0.1	20	
Lead		0.497	mg/L	0.0010	99	70	130	0.7	20	
Molybdenum		0.575	mg/L	0.0010	103	70	130	0.3	20	
Selenium		0.538	mg/L	0.0010	102	70	130	1.1	20	
Thallium		0.475	mg/L	0.00050	95	70	130	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: SUB-B266413	
Lab ID: **ICV**		Initial Calibration Verification Standard							08/31/16 15:50	
Mercury		0.0021	mg/L	0.00010	103	90	110			
Method: **E245.1**									Batch: B_102294	
Lab ID: **MB-102294**		Method Blank				Run: SUB-B266413			08/31/16 16:26	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-102294**		Laboratory Control Sample				Run: SUB-B266413			08/31/16 16:27	
Mercury		0.0020	mg/L	0.00010	100	85	115			
Lab ID: **B16082795-002BMS**		Sample Matrix Spike				Run: SUB-B266413			08/31/16 16:37	
Mercury		0.0020	mg/L	0.00010	98	70	130			
Lab ID: **B16082795-002BMSD**		Sample Matrix Spike Duplicate				Run: SUB-B266413			08/31/16 16:39	
Mercury		0.0020	mg/L	0.00010	98	70	130	0.1	30	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC1_160825A	
Lab ID:	**ICV/LCS-W-3770**	2	Initial Calibration Verification Standard							08/25/16 18:12	
Chloride			101	mg/L	2.0	101	90	110			
Sulfate			101	mg/L	2.0	101	90	110			
Method:	**E300.0**									Batch: R69464	
Lab ID:	**ICB**	2	Method Blank				Run: IC1_160825A			08/25/16 18:31	
Chloride			0.8	mg/L	0.05						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB-3911**	2	Laboratory Fortified Blank				Run: IC1_160825A			08/25/16 18:51	
Chloride			23.9	mg/L	1.0	93	90	110			
Sulfate			24.6	mg/L	1.0	98	90	110			
Lab ID:	**T16080097-003AMS**	2	Sample Matrix Spike				Run: IC1_160825A			08/26/16 00:02	
Chloride			477	mg/L	10	103	90	110			
Sulfate			865	mg/L	10	97	90	110			
Lab ID:	**T16080097-003AMSD**	2	Sample Matrix Spike Duplicate				Run: IC1_160825A			08/26/16 00:21	
Chloride			481	mg/L	10	104	90	110	0.8	10	
Sulfate			872	mg/L	10	101	90	110	0.9	10	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-0138
Lab ID: MB-RA226-0138	3	Method Blank				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		0.0008	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: LCS-RA226-0138		Laboratory Control Sample				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		55	pCi/L		104	80	120			
Lab ID: T16080104-002CMS		Sample Matrix Spike				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		110	pCi/L		88	70	130			
Lab ID: T16080104-002CMSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		110	pCi/L		87	70	130	1.1	20	
Method: E903.0										Batch: RA226-0139
Lab ID: MB-RA226-0139	3	Method Blank				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		0.06	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: LCS-RA226-0139		Laboratory Control Sample				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		55	pCi/L		103	80	120			
Lab ID: T16080104-001CMS		Sample Matrix Spike				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		110	pCi/L		81	70	130			
Lab ID: T16080104-001CMSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		110	pCi/L		81	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080097

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: C_RA228-5307
Lab ID: **LCS-228-RA228-5307**		Laboratory Control Sample				Run: SUB-C214910				09/06/16 10:35
Radium 228		8.8	pCi/L		98	80	120			
Lab ID: **MB-228-RA228-5307**	3	Method Blank				Run: SUB-C214910				09/06/16 10:35
Radium 228		0.2	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C16081142-003CMS**		Sample Matrix Spike				Run: SUB-C214910				09/06/16 12:08
Radium 228		22	pCi/L		99	70	130			
Lab ID: **C16081142-003CMSD**		Sample Matrix Spike Duplicate				Run: SUB-C214910				09/06/16 12:08
Radium 228		25	pCi/L		111	70	130	11	54.3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

Barium Recovery

Per NELAC requirement EL-V1M6-2009 1.7.2.3.c, Energy Laboratories is reporting the sample specific Barium Sulfate carrier recovery.

T16080097	Sample	Recovery	
	T16080097-001C	92.72%	
	T16080097-001C	101.36%	
	T16080097-002C	93.43%	
	T16080097-002C	106.80%	
	T16080097-003C	91.65%	
	T16080097-003C	100.19%	
	T16080097-004C	96.09%	
	T16080097-004C	104.85%	
	T16080097-005C	98.25%	
	T16080097-005C	101.95%	
	T16080097-006C	102.52%	
	T16080097-006C	105.15%	
	T16080097-007C	71.46%	
	T16080097-007C	90.76%	
	T16080097-008C	76.31%	
	T16080097-008C	95.03%	

9/20/2016 4:07:03 PM

Work Order Receipt Checklist

Texas Municipal Power Agency T16080097

Login completed by: Alisha D. Griffin
Date Received: 8/24/2016
Reviewed by: BL2000\ssuchar
Received by: adg
Reviewed Date: 8/29/2016
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

pH check of applicable preserved fractions acceptable (Lot#3931). Per Samuel M, log in per history (Schedule 1 & 2 as on COC), but additional analysis of Ca, Mg, Na, K, SO4, Cl. Receipt temperature checked with Thermo 1210: Cooler #T1071 - read temperature = 0.6°C; no corrections. Cooler #T1140 - read temperature = 0.7°C; no corrections. ADG 160824 11:19

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: AMEC - Foster Wheeler	Project Name, PWS, Permit, Etc.: TMPA Gibbons Creek	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address:	Contact Name: Morris Barney/Greg Seifert Phone/Fax:	Email:	Sampler: (Please Print) Brian Gieselman
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: ____ ☐ Other: ____

☐ EDD/EDT (Electronic Data) Format: ____ ☐ LEVEL IV ☐ NELAC

Number of Containers; Sample Type: A W S V B O DW (Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water)

ANALYSIS REQUESTED: Schedule 1+2

SEE ATTACHED — Standard Turnaround (TAT)

R U S H — Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: Thermo 1210; No corrections.
T1071 0.6°C
T1140 0.7°C
T16080097

Shipped by: Hand
Cooler ID(s):
Receipt Temp: ___ °C
On Ice: (Y) N /FF
Custody Seal On Bottle Y (N); On Cooler Y N
Intact Y N
Signature Match Y N

#	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Schedule 1+2	LABORATORY USE ONLY
1	~~AP PZ-1~~	~~[illegible]~~	~~1437~~	~~W~~	~~X~~	
2	~~AP PZ-2~~	~~8-24-16~~	~~1522~~			
3	AP MW-3	8-24-16	0946	W	X	-001
4	AP PZ-3	↓	1113	↓	X	-002
5	AP MW-1D	↓	1213	↓	X	-003
6	AP MW-5	↓	1412	↓	X	-004
7	AP MW-4	↓	1457	↓	X	-005
8	AP PZ-4	↓	1621	↓	X	-006
9	Dup-2	↓	–	↓	X	-007
10	EQBK 8-24	↓	1518	↓	X	-008

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Samuel C. Macon	8-24-16 1734	Samuel C. Macon			
			Received by Laboratory: Alisha D. Griffin	08/24/16 17:34	[signature]

Sample Disposal: Return to Client: ____ Lab Disposal: ____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

September 21, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: T16080104 Quote ID: T3094

Project Name: CCRR

Energy Laboratories Inc. College Station TX received the following 7 samples for Texas Municipal Power Agency on 8/25/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
T16080104-001	SFL MW-5	08/25/16 9:52	08/25/16	Groundwater	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride E300.0 Anions Cations by ICP pH Metals Digestion by EPA 200.2 Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
T16080104-002	SFL MW-2	08/25/16 10:45	08/25/16	Groundwater	Same As Above
T16080104-003	SFL MW-4	08/25/16 12:28	08/25/16	Groundwater	Same As Above
T16080104-004	SFL MW-3	08/25/16 13:24	08/25/16	Groundwater	Same As Above
T16080104-006	SFL MW-6	08/25/16 15:22	08/25/16	Groundwater	Same As Above
T16080104-007	EQBK 8-25	08/25/16 16:15	08/25/16	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 415 Graham Rd., College Station, TX 77845-9660, unless otherwise noted.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: T16080104

Report Date: 09/21/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080104-001
Client Sample ID: SFL MW-5

Report Date: 09/21/16
Collection Date: 08/25/16 09:52
DateReceived: 08/25/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	5.1	s.u.	H	0.1		A4500-H B	08/26/16 13:36 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	7960	mg/L		100		A2540 C	08/29/16 15:26 / pwh
MAJOR IONS							
Chloride	2950	mg/L	D	50		E300.0	09/02/16 22:09 / pwh
Fluoride	0.2	mg/L		0.1		A4500-F C	08/29/16 10:26 / pwh
Sulfate	2090	mg/L	D	50		E300.0	08/31/16 18:54 / pwh
Calcium	906	mg/L	D	2		E200.7	08/29/16 17:28 / jtr
Magnesium	178	mg/L	D	2		E200.7	08/29/16 17:28 / jtr
Potassium	64	mg/L	D	2		E200.7	08/29/16 17:28 / jtr
Sodium	1590	mg/L	D	2		E200.7	08/29/16 17:28 / jtr
Boron	3.6	mg/L	D	0.5		E200.7	08/29/16 17:28 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 17:14 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 17:14 / eli-b
Barium	0.08	mg/L		0.01		E200.7	09/01/16 19:38 / eli-b
Beryllium	0.01	mg/L		0.001		E200.8	09/01/16 17:14 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 17:14 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/06/16 18:27 / eli-b
Cobalt	0.06	mg/L		0.02		E200.8	09/06/16 18:27 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 17:14 / eli-b
Lithium	0.8	mg/L	D	0.02		E200.7	09/01/16 19:38 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	09/01/16 19:38 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 17:14 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 17:14 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:52 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	5.9	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	25.6	pCi/L				A7500-RA	09/20/16 16:42 / sas
Radium 226 + Radium 228 precision (±)	2.52	pCi/L				A7500-RA	09/20/16 16:42 / sas
Total Radium as Ra226	20	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	2.1	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.16	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080104-002
Client Sample ID: SFL MW-2

Report Date: 09/21/16
Collection Date: 08/25/16 10:45
DateReceived: 08/25/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	6.9	s.u.	H	0.1		A4500-H B	08/26/16 13:41 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	7680	mg/L		100		A2540 C	08/29/16 15:27 / pwh
MAJOR IONS							
Chloride	2810	mg/L	D	50		E300.0	09/02/16 22:28 / pwh
Fluoride	0.1	mg/L		0.1		A4500-F C	08/29/16 10:44 / pwh
Sulfate	1900	mg/L	D	50		E300.0	08/31/16 19:14 / pwh
Calcium	890	mg/L	D	2		E200.7	08/29/16 17:30 / jtr
Magnesium	141	mg/L	D	2		E200.7	08/29/16 17:30 / jtr
Potassium	51	mg/L	D	2		E200.7	08/29/16 17:30 / jtr
Sodium	1490	mg/L	D	2		E200.7	08/29/16 17:30 / jtr
Boron	0.6	mg/L	D	0.5		E200.7	08/29/16 17:30 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 17:16 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 17:16 / eli-b
Barium	0.03	mg/L		0.01		E200.7	09/01/16 19:42 / eli-b
Beryllium	0.002	mg/L		0.001		E200.8	09/01/16 17:16 / eli-b
Cadmium	ND	mg/L		0.01		E200.8	09/01/16 17:16 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/02/16 15:50 / eli-b
Cobalt	0.02	mg/L		0.02		E200.8	09/12/16 12:59 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 17:16 / eli-b
Lithium	0.5	mg/L	D	0.02		E200.7	09/01/16 19:42 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	09/01/16 19:42 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 17:16 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 17:16 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 16:58 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	6.5	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	20.6	pCi/L				A7500-RA	09/20/16 16:42 / sas
Radium 226 + Radium 228 precision (±)	2.25	pCi/L				A7500-RA	09/20/16 16:42 / sas
Total Radium as Ra226	14	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 precision (±)	1.6	pCi/L				E903.0	09/02/16 10:43 / jjc
Total Radium as Ra226 MDC	0.19	pCi/L				E903.0	09/02/16 10:43 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080104-003
Client Sample ID: SFL MW-4

Report Date: 09/21/16
Collection Date: 08/25/16 12:28
DateReceived: 08/25/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	7.1	s.u.	H	0.1		A4500-H B	08/26/16 13:45 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	6160	mg/L		100		A2540 C	08/29/16 15:27 / pwh
MAJOR IONS							
Chloride	1680	mg/L	D	20		E300.0	09/02/16 22:48 / pwh
Fluoride	0.3	mg/L		0.1		A4500-F C	08/29/16 10:40 / pwh
Sulfate	2100	mg/L	D	20		E300.0	08/31/16 19:33 / pwh
Calcium	768	mg/L	D	2		E200.7	08/29/16 17:32 / jtr
Magnesium	117	mg/L	D	2		E200.7	08/29/16 17:32 / jtr
Potassium	57	mg/L	D	2		E200.7	08/29/16 17:32 / jtr
Sodium	1070	mg/L	D	2		E200.7	08/29/16 17:32 / jtr
Boron	0.6	mg/L	D	0.5		E200.7	08/29/16 17:32 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 17:19 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 17:19 / eli-b
Barium	0.03	mg/L		0.01		E200.7	09/01/16 19:45 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	09/01/16 19:45 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	09/01/16 19:45 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/02/16 15:53 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	09/12/16 13:01 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 17:19 / eli-b
Lithium	0.5	mg/L	D	0.02		E200.7	09/01/16 19:45 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	09/01/16 19:45 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 17:19 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 17:19 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 17:00 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	0.64	pCi/L	U			RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	5.28	pCi/L				A7500-RA	09/20/16 16:42 / sas
Radium 226 + Radium 228 precision (±)	1.43	pCi/L				A7500-RA	09/20/16 16:42 / sas
Total Radium as Ra226	4.6	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	0.65	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080104-004
Client Sample ID: SFL MW-3

Report Date: 09/21/16
Collection Date: 08/25/16 13:24
DateReceived: 08/25/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	3.9	s.u.	H	0.1		A4500-H B	08/26/16 13:49 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	5660	mg/L		100		A2540 C	08/29/16 15:27 / pwh
MAJOR IONS							
Chloride	1490	mg/L	D	20		E300.0	09/02/16 23:07 / pwh
Fluoride	0.7	mg/L		0.1		A4500-F C	08/29/16 10:51 / pwh
Sulfate	2210	mg/L	D	20		E300.0	08/31/16 19:53 / pwh
Calcium	666	mg/L	D	2		E200.7	08/29/16 17:33 / jtr
Magnesium	124	mg/L	D	2		E200.7	08/29/16 17:33 / jtr
Potassium	54	mg/L	D	2		E200.7	08/29/16 17:33 / jtr
Sodium	914	mg/L	D	2		E200.7	08/29/16 17:33 / jtr
Boron	2.5	mg/L	D	0.5		E200.7	08/29/16 17:33 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 17:22 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 17:22 / eli-b
Barium	0.06	mg/L		0.01		E200.7	09/01/16 19:49 / eli-b
Beryllium	0.04	mg/L		0.001		E200.7	09/01/16 19:49 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	09/01/16 19:49 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/02/16 15:55 / eli-b
Cobalt	0.07	mg/L		0.02		E200.8	09/12/16 13:04 / eli-b
Lead	0.03	mg/L		0.01		E200.8	09/01/16 17:22 / eli-b
Lithium	0.4	mg/L	D	0.02		E200.7	09/01/16 19:49 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	09/01/16 19:49 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 17:22 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 17:22 / eli-b
METALS, TOTAL							
Mercury	0.003	mg/L		0.001		E245.1	09/01/16 16:11 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	5.3	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	16.6	pCi/L				A7500-RA	09/20/16 16:42 / sas
Radium 226 + Radium 228 precision (±)	2.03	pCi/L				A7500-RA	09/20/16 16:42 / sas
Total Radium as Ra226	11	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	1.3	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080104-006
Client Sample ID: SFL MW-6

Report Date: 09/21/16
Collection Date: 08/25/16 15:22
DateReceived: 08/25/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	4.3	s.u.	H	0.1		A4500-H B	08/26/16 14:02 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	8850	mg/L		100		A2540 C	08/29/16 15:28 / pwh
MAJOR IONS							
Chloride	3470	mg/L	D	50		E300.0	09/02/16 23:46 / pwh
Fluoride	0.8	mg/L		0.1		A4500-F C	08/29/16 11:10 / pwh
Sulfate	2240	mg/L	D	50		E300.0	08/31/16 20:31 / pwh
Calcium	929	mg/L	D	2		E200.7	08/29/16 17:37 / jtr
Magnesium	245	mg/L	D	2		E200.7	08/29/16 17:37 / jtr
Potassium	81	mg/L	D	2		E200.7	08/29/16 17:37 / jtr
Sodium	1720	mg/L	D	2		E200.7	08/29/16 17:37 / jtr
Boron	0.39	mg/L		0.05		E200.7	09/01/16 13:52 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 17:27 / eli-b
Arsenic	0.01	mg/L		0.01		E200.8	09/01/16 17:27 / eli-b
Barium	0.08	mg/L		0.01		E200.7	09/01/16 19:56 / eli-b
Beryllium	0.05	mg/L	D	0.002		E200.7	09/01/16 19:56 / eli-b
Cadmium	0.01	mg/L		0.01		E200.8	09/01/16 17:27 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/02/16 16:01 / eli-b
Cobalt	0.1	mg/L		0.02		E200.8	09/12/16 13:09 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 17:27 / eli-b
Lithium	0.8	mg/L	D	0.04		E200.7	09/01/16 19:56 / eli-b
Molybdenum	ND	mg/L		0.05		E200.8	09/01/16 17:27 / eli-b
Selenium	0.01	mg/L		0.01		E200.8	09/01/16 17:27 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 17:27 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 17:05 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	4.5	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	28.8	pCi/L				A7500-RA	09/20/16 16:42 / sas
Radium 226 + Radium 228 precision (±)	2.83	pCi/L				A7500-RA	09/20/16 16:42 / sas
Total Radium as Ra226	24	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	2.5	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.17	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: T16080104-007
Client Sample ID: EQBK 8-25

Report Date: 09/21/16
Collection Date: 08/25/16 16:15
DateReceived: 08/25/16
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
AGRONOMIC PROPERTIES							
pH	5.7	s.u.	H	0.1		A4500-H B	08/26/16 14:06 / rda
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/29/16 15:28 / pwh
MAJOR IONS							
Chloride	ND	mg/L		1		E300.0	09/03/16 00:05 / pwh
Fluoride	ND	mg/L		0.1		A4500-F C	08/29/16 11:17 / pwh
Sulfate	ND	mg/L		1		E300.0	08/31/16 20:51 / pwh
Calcium	ND	mg/L		1		E200.7	08/29/16 17:39 / jtr
Magnesium	ND	mg/L		1		E200.7	08/29/16 17:39 / jtr
Potassium	ND	mg/L		1		E200.7	08/29/16 17:39 / jtr
Sodium	ND	mg/L		1		E200.7	09/01/16 13:54 / jtr
Boron	ND	mg/L		0.05		E200.7	08/29/16 17:39 / jtr
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/01/16 17:29 / eli-b
Arsenic	ND	mg/L		0.01		E200.8	09/01/16 17:29 / eli-b
Barium	ND	mg/L		0.01		E200.7	09/01/16 20:06 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	09/01/16 20:06 / eli-b
Cadmium	ND	mg/L		0.01		E200.7	09/01/16 20:06 / eli-b
Chromium	ND	mg/L		0.01		E200.8	09/02/16 16:03 / eli-b
Cobalt	ND	mg/L		0.02		E200.8	09/12/16 13:12 / eli-b
Lead	ND	mg/L		0.01		E200.8	09/01/16 17:29 / eli-b
Lithium	ND	mg/L		0.01		E200.7	09/13/16 15:19 / eli-b
Molybdenum	ND	mg/L		0.05		E200.7	09/01/16 20:06 / eli-b
Selenium	ND	mg/L		0.01		E200.8	09/01/16 17:29 / eli-b
Thallium	ND	mg/L		0.01		E200.8	09/01/16 17:29 / eli-b
METALS, TOTAL							
Mercury	ND	mg/L		0.001		E245.1	08/31/16 17:07 / eli-b
RADIONUCLIDES - TOTAL							
Radium 228	1.1	pCi/L	U			RA-05	09/06/16 12:08 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/06/16 12:08 / eli-ca
Radium 226 + Radium 228	1.23	pCi/L				A7500-RA	09/20/16 16:42 / sas
Radium 226 + Radium 228 precision (±)	1.22	pCi/L				A7500-RA	09/20/16 16:42 / sas
Total Radium as Ra226	0.15	pCi/L	U			E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 precision (±)	0.15	pCi/L				E903.0	09/02/16 16:53 / jjc
Total Radium as Ra226 MDC	0.20	pCi/L				E903.0	09/02/16 16:53 / jjc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**									Batch: TDS160829A	
Lab ID: **MB-1_160829A**	Method Blank					Run: BAL3_160829A			08/29/16 15:23	
Solids, Total Dissolved TDS @ 180 C		6	mg/L	5						
Lab ID: **LCS-2_160829A**	Laboratory Control Sample					Run: BAL3_160829A			08/29/16 15:23	
Solids, Total Dissolved TDS @ 180 C		1120	mg/L	11	100	90	110			
Lab ID: **T16080104-002A DUP**	Sample Duplicate					Run: BAL3_160829A			08/29/16 15:27	
Solids, Total Dissolved TDS @ 180 C		7700	mg/L	100				0.3	5	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: ATT1_160829A	
Lab ID: **CCV-F2**		Continuing Calibration Verification Standard							08/29/16 11:21	
Fluoride		1.98	mg/L	0.10	99	90	110			
Method: **A4500-F C**									Batch: R69478	
Lab ID: **LCS-F-3911**		Laboratory Control Sample				Run: ATT1_160829A			08/29/16 10:13	
Fluoride		5.29	mg/L	0.10	103	90	110			
Lab ID: **MBLK**		Method Blank				Run: ATT1_160829A			08/29/16 10:19	
Fluoride		0.02	mg/L	0.002						
Lab ID: **T16080104-001ADUP**		Sample Duplicate				Run: ATT1_160829A			08/29/16 10:32	
Fluoride		0.240	mg/L	0.10				0.0	10	
Lab ID: **T16080104-001AMS**		Sample Matrix Spike				Run: ATT1_160829A			08/29/16 10:35	
Fluoride		4.57	mg/L	0.10	85	90	110			S

- Low spike recovery due to matrix interference

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: ATT1_160826A	
Lab ID: **ICV/LCS-PH-3840**	Initial Calibration Verification Standard								08/26/16 09:04	
pH		7.0	s.u.	0.1	100	98	102			
Lab ID: **ICV/LCS-PH-3840**	Initial Calibration Verification Standard								08/26/16 12:52	
pH		7.0	s.u.	0.1	100	98	102			
Method: **A4500-H B**									Batch: R69474	
Lab ID: **ICV1-PH12_3890**	Initial Calibration Verification Standard					Run: ATT1_160826A			08/26/16 08:58	
pH		12	s.u.	0.1	99	99	101			
Lab ID: **ICV2-PH2_3594**	Initial Calibration Verification Standard					Run: ATT1_160826A			08/26/16 09:00	
pH		2.1	s.u.	0.1	105	95	105			
Lab ID: **T16080104-004ADUP**	Sample Duplicate					Run: ATT1_160826A			08/26/16 13:53	
pH		3.9	s.u.	0.1				0.3	3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP102-CS_160829C	
Lab ID: Initial Calib Verif	5	Initial Calibration Verification Standard							08/29/16 17:00	
Boron		0.993	mg/L	0.050	99	95	105			
Calcium		49.4	mg/L	1.0	99	95	105			
Magnesium		50.6	mg/L	1.0	101	95	105			
Potassium		50.8	mg/L	1.0	102	95	105			
Sodium		49.8	mg/L	1.0	100	95	105			
Lab ID: Cont Calib Blank	5	Continuing Calibration Blank							08/29/16 17:02	
Boron		0.0217	mg/L	0.050						
Calcium		0.00298	mg/L	1.0						
Magnesium		-0.000326	mg/L	1.0						
Potassium		0.00430	mg/L	1.0						
Sodium		0.281	mg/L	1.0						
Method: E200.7									Batch: R69492	
Lab ID: IPC	5	Initial Precision and Recovery				Run: ICP102-CS_160829C			08/29/16 17:08	
Boron		0.986	mg/L	0.050	99	95	105			
Calcium		50.0	mg/L	1.0	100	95	105			
Magnesium		51.3	mg/L	1.0	103	95	105			
Potassium		49.2	mg/L	1.0	98	95	105			
Sodium		50.6	mg/L	1.0	101	95	105			
Lab ID: LCS-160829	5	Laboratory Control Sample				Run: ICP102-CS_160829C			08/29/16 17:14	
Calcium		50.5	mg/L	1.0	101	85	115			
Magnesium		51.5	mg/L	1.0	103	85	115			
Potassium		50.8	mg/L	1.0	102	85	115			
Sodium		50.6	mg/L	1.0	101	85	115			
Boron		1.01	mg/L	0.050	98	85	115			
Lab ID: MB-160829	5	Method Blank				Run: ICP102-CS_160829C			08/29/16 17:16	
Calcium		ND	mg/L	0.08						
Magnesium		ND	mg/L	0.004						
Potassium		ND	mg/L	0.01						
Sodium		0.2	mg/L	0.2						
Boron		0.03	mg/L	0.001						
Lab ID: T16080082-008ASD	5	Serial Dilution				Run: ICP102-CS_160829C			08/29/16 17:19	
Calcium		ND	mg/L	1.0		0	0	10		
Magnesium		ND	mg/L	1.0		0	0	10		
Potassium		ND	mg/L	1.0		0	0	10		
Sodium		0.926	mg/L	1.0		0	0	10		N
Boron		0.0250	mg/L	0.25		0	0	10		N
Lab ID: T16080082-008AMS	5	Sample Matrix Spike				Run: ICP102-CS_160829C			08/29/16 17:21	
Calcium		51.0	mg/L	1.0	102	70	130			
Magnesium		52.2	mg/L	1.0	104	70	130			
Potassium		51.7	mg/L	1.0	103	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**										Batch: R69492
Lab ID: **T16080082-008AMS**	5	Sample Matrix Spike				Run: ICP102-CS_160829C				08/29/16 17:21
Sodium		51.6	mg/L	1.0	103	70	130			
Boron		1.09	mg/L	0.050	107	70	130			
Lab ID: **T16080082-008AMSD**	5	Sample Matrix Spike Duplicate				Run: ICP102-CS_160829C				08/29/16 17:23
Calcium		51.5	mg/L	1.0	103	70	130	0.9	20	
Magnesium		52.8	mg/L	1.0	106	70	130	1.1	20	
Potassium		52.6	mg/L	1.0	105	70	130	1.7	20	
Sodium		52.2	mg/L	1.0	104	70	130	1.1	20	
Boron		1.10	mg/L	0.050	109	70	130	1.6	20	
Method: **E200.7**										Analytical Run: ICP102-CS_160901B
Lab ID: **Initial Calib Verif**	2	Initial Calibration Verification Standard								09/01/16 13:38
Boron		0.996	mg/L	0.050	100	95	105			
Sodium		51.0	mg/L	1.0	102	95	105			
Lab ID: **Cont Calib Blank**	2	Continuing Calibration Blank								09/01/16 13:39
Boron		0.00421	mg/L	0.050						
Sodium		0.00284	mg/L	1.0						
Method: **E200.7**										Batch: R69562
Lab ID: **IPC**	2	Initial Precision and Recovery				Run: ICP102-CS_160901B				09/01/16 13:43
Boron		0.975	mg/L	0.050	98	95	105			
Sodium		48.7	mg/L	1.0	97	95	105			
Lab ID: **LCS-160831**	2	Laboratory Control Sample				Run: ICP102-CS_160901B				09/01/16 13:49
Sodium		51.6	mg/L	1.0	103	85	115			
Boron		1.01	mg/L	0.050	101	85	115			
Lab ID: **MB-160831**	2	Method Blank				Run: ICP102-CS_160901B				09/01/16 13:50
Sodium		ND	mg/L	0.02						
Boron		0.003	mg/L	0.001						
Lab ID: **T16080104-007ASD**	2	Serial Dilution				Run: ICP102-CS_160901B				09/01/16 13:56
Sodium		0.206	mg/L	1.0		0	0		10	N
Boron		ND	mg/L	0.25		0	0		10	
Lab ID: **T16080104-007AMS**	2	Sample Matrix Spike				Run: ICP102-CS_160901B				09/01/16 13:58
Sodium		51.1	mg/L	1.0	102	70	130			
Boron		1.05	mg/L	0.050	105	70	130			
Lab ID: **T16080104-007AMSD**	2	Sample Matrix Spike Duplicate				Run: ICP102-CS_160901B				09/01/16 14:03
Sodium		50.7	mg/L	1.0	101	70	130	0.8	20	
Boron		1.05	mg/L	0.050	105	70	130	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: SUB-B266445	
Lab ID: **ICV**	6	Continuing Calibration Verification Standard							09/01/16 10:04	
Barium		2.51	mg/L	0.10	100	95	105			
Beryllium		1.25	mg/L	0.010	100	95	105			
Cadmium		2.45	mg/L	0.010	98	95	105			
Cobalt		2.45	mg/L	0.020	98	95	105			
Lithium		1.21	mg/L	0.10	97	95	105			
Molybdenum		2.46	mg/L	0.10	98	95	105			
Method: **E200.7**									Batch: B_102272	
Lab ID: **MB-102272**	6	Method Blank				Run: SUB-B266445			09/01/16 19:07	
Barium		ND	mg/L	0.0003						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	0.0008						
Cobalt		0.005	mg/L	0.001						
Lithium		0.002	mg/L	0.002						
Molybdenum		ND	mg/L	0.004						
Lab ID: **LCS-102272**	6	Laboratory Control Sample				Run: SUB-B266445			09/01/16 19:11	
Barium		0.492	mg/L	0.10	98	85	115			
Beryllium		0.257	mg/L	0.010	103	85	115			
Cadmium		0.256	mg/L	0.010	103	85	115			
Cobalt		0.514	mg/L	0.050	102	85	115			
Lithium		0.522	mg/L	0.10	104	85	115			
Molybdenum		0.503	mg/L	0.10	101	85	115			
Lab ID: **B16082814-007BMS3**	6	Sample Matrix Spike				Run: SUB-B266445			09/01/16 19:31	
Barium		0.544	mg/L	0.050	101	70	130			
Beryllium		0.267	mg/L	0.0014	107	70	130			
Cadmium		0.268	mg/L	0.0054	107	70	130			
Cobalt		1.39	mg/L	0.014	108	70	130			
Lithium		0.690	mg/L	0.10	109	70	130			
Molybdenum		1.07	mg/L	0.029	108	70	130			
Lab ID: **B16082814-007BMSD**	6	Sample Matrix Spike Duplicate				Run: SUB-B266445			09/01/16 19:35	
Barium		0.528	mg/L	0.050	98	70	130	3.0	20	
Beryllium		0.261	mg/L	0.0014	104	70	130	2.1	20	
Cadmium		0.260	mg/L	0.0054	104	70	130	3.0	20	
Cobalt		1.36	mg/L	0.014	102	70	130	2.3	20	
Lithium		0.675	mg/L	0.10	106	70	130	2.2	20	
Molybdenum		1.01	mg/L	0.029	95	70	130	6.1	20	
Method: **E200.7**									Analytical Run: SUB-B266951	
Lab ID: **ICV**		Continuing Calibration Verification Standard							09/13/16 11:00	
Lithium		1.28	mg/L	0.10	102	95	105			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: SUB-B266449	
Lab ID: QCS	8	Initial Calibration Verification Standard							09/01/16 11:34	
Antimony		0.0485	mg/L	0.050	97	90	110			
Arsenic		0.0524	mg/L	0.0050	105	90	110			
Beryllium		0.0256	mg/L	0.0010	103	90	110			
Cadmium		0.0251	mg/L	0.0010	100	90	110			
Lead		0.0496	mg/L	0.010	99	90	110			
Molybdenum		0.0482	mg/L	0.0050	96	90	110			
Selenium		0.0477	mg/L	0.0050	95	90	110			
Thallium		0.0495	mg/L	0.10	99	90	110			
Method: E200.8									Batch: B_102272	
Lab ID: MB-102272	8	Method Blank				Run: SUB-B266449			09/01/16 16:55	
Antimony		3E-05	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Cadmium		ND	mg/L	2E-05						
Chromium		0.0006	mg/L	4E-05						
Lead		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: LCS-102272	8	Laboratory Control Sample				Run: SUB-B266449			09/01/16 17:32	
Antimony		0.496	mg/L	0.0050	99	85	115			
Arsenic		0.530	mg/L	0.0010	106	85	115			
Cadmium		0.275	mg/L	0.0010	110	85	115			
Chromium		0.539	mg/L	0.0010	108	85	115			
Lead		0.490	mg/L	0.0010	98	85	115			
Molybdenum		0.492	mg/L	0.0050	98	85	115			
Selenium		0.459	mg/L	0.0050	92	85	115			
Thallium		0.466	mg/L	0.0010	93	85	115			
Lab ID: B16082814-007BMS3	8	Sample Matrix Spike				Run: SUB-B266449			09/01/16 17:43	
Antimony		0.504	mg/L	0.0010	101	70	130			
Arsenic		0.560	mg/L	0.0010	110	70	130			
Cadmium		0.281	mg/L	0.0010	112	70	130			
Chromium		0.532	mg/L	0.0050	106	70	130			
Lead		0.494	mg/L	0.0010	99	70	130			
Molybdenum		1.03	mg/L	0.0010	100	70	130			
Selenium		0.436	mg/L	0.0010	87	70	130			
Thallium		0.465	mg/L	0.00050	93	70	130			
Lab ID: B16082814-007BMSD	8	Sample Matrix Spike Duplicate				Run: SUB-B266449			09/01/16 17:46	
Antimony		0.497	mg/L	0.0010	99	70	130	1.2	20	
Arsenic		0.558	mg/L	0.0010	109	70	130	0.4	20	
Cadmium		0.281	mg/L	0.0010	112	70	130	0.1	20	
Chromium		0.532	mg/L	0.0050	106	70	130	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: B_102272
Lab ID: **B16082814-007BMSD**	8	Sample Matrix Spike Duplicate				Run: SUB-B266449				09/01/16 17:46
Lead		0.496	mg/L	0.0010	99	70	130	0.3	20	
Molybdenum		1.04	mg/L	0.0010	102	70	130	0.9	20	
Selenium		0.483	mg/L	0.0010	96	70	130	10	20	
Thallium		0.470	mg/L	0.00050	94	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: SUB-B266526	
Lab ID: QCS		Initial Calibration Verification Standard							09/02/16 11:15	
Chromium		0.0493	mg/L	0.010	99	90	110			
Method: E200.8									Batch: B_102272	
Lab ID: MB-102272	8	Method Blank				Run: SUB-B266526			09/02/16 14:37	
Antimony		0.0001	mg/L	3E-05						
Arsenic		ND	mg/L	0.0001						
Cadmium		ND	mg/L	1E-05						
Chromium		0.0008	mg/L	8E-05						
Lead		9E-05	mg/L	4E-05						
Molybdenum		ND	mg/L	4E-05						
Selenium		0.001	mg/L	0.0002						
Thallium		ND	mg/L	1E-05						
Lab ID: LCS-102272	8	Laboratory Control Sample				Run: SUB-B266526			09/02/16 16:06	
Antimony		0.485	mg/L	0.0050	97	85	115			
Arsenic		0.486	mg/L	0.0010	97	85	115			
Cadmium		0.253	mg/L	0.0010	101	85	115			
Chromium		0.482	mg/L	0.0010	96	85	115			
Lead		0.501	mg/L	0.0010	100	85	115			
Molybdenum		0.491	mg/L	0.0050	98	85	115			
Selenium		0.477	mg/L	0.0050	95	85	115			
Thallium		0.495	mg/L	0.0010	99	85	115			
Lab ID: B16082814-007BMS3	8	Sample Matrix Spike				Run: SUB-B266526			09/02/16 16:08	
Antimony		0.521	mg/L	0.0010	104	70	130			
Arsenic		0.499	mg/L	0.0010	97	70	130			
Cadmium		0.247	mg/L	0.0010	98	70	130			
Chromium		0.498	mg/L	0.0050	99	70	130			
Lead		0.532	mg/L	0.0010	106	70	130			
Molybdenum		1.08	mg/L	0.0010	115	70	130			
Selenium		0.471	mg/L	0.0012	92	70	130			
Thallium		0.520	mg/L	0.00050	104	70	130			
Lab ID: B16082814-007BMSD	8	Sample Matrix Spike Duplicate				Run: SUB-B266526			09/02/16 16:11	
Antimony		0.497	mg/L	0.0010	99	70	130	4.7	20	
Arsenic		0.484	mg/L	0.0010	94	70	130	3.1	20	
Cadmium		0.244	mg/L	0.0010	97	70	130	1.2	20	
Chromium		0.478	mg/L	0.0050	95	70	130	4.1	20	
Lead		0.518	mg/L	0.0010	104	70	130	2.7	20	
Molybdenum		1.06	mg/L	0.0010	111	70	130	1.7	20	
Selenium		0.460	mg/L	0.0012	90	70	130	2.3	20	
Thallium		0.506	mg/L	0.00050	101	70	130	2.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: SUB-B266607	
Lab ID: QCS	2	Initial Calibration Verification Standard							09/06/16 12:07	
Chromium		0.0525	mg/L	0.010	105	90	110			
Cobalt		0.0516	mg/L	0.010	103	90	110			
Method: E200.8									Batch: B_102272	
Lab ID: MB-102272	8	Method Blank				Run: SUB-B266607			09/06/16 18:04	
Antimony		ND	mg/L	3E-05						
Arsenic		0.0002	mg/L	7E-05						
Cadmium		ND	mg/L	2E-05						
Chromium		0.0007	mg/L	4E-05						
Lead		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: LCS-102272	8	Laboratory Control Sample				Run: SUB-B266607			09/06/16 18:06	
Antimony		0.500	mg/L	0.0050	100	85	115			
Arsenic		0.498	mg/L	0.0010	100	85	115			
Cadmium		0.254	mg/L	0.0010	102	85	115			
Chromium		0.496	mg/L	0.0010	99	85	115			
Lead		0.488	mg/L	0.0010	98	85	115			
Molybdenum		0.495	mg/L	0.0050	99	85	115			
Selenium		0.472	mg/L	0.0050	94	85	115			
Thallium		0.475	mg/L	0.0010	95	85	115			
Lab ID: B16082814-007BMS3	8	Sample Matrix Spike				Run: SUB-B266607			09/06/16 18:14	
Antimony		0.538	mg/L	0.0010	108	70	130			
Arsenic		0.522	mg/L	0.0010	102	70	130			
Cadmium		0.262	mg/L	0.0010	104	70	130			
Chromium		0.493	mg/L	0.0050	98	70	130			
Lead		0.520	mg/L	0.0010	104	70	130			
Molybdenum		1.09	mg/L	0.0010	112	70	130			
Selenium		0.471	mg/L	0.0021	94	70	130			
Thallium		0.504	mg/L	0.00050	100	70	130			
Lab ID: B16082814-007BMSD	8	Sample Matrix Spike Duplicate				Run: SUB-B266607			09/06/16 18:17	
Antimony		0.500	mg/L	0.0010	100	70	130	7.3	20	
Arsenic		0.504	mg/L	0.0010	99	70	130	3.3	20	
Cadmium		0.252	mg/L	0.0010	100	70	130	3.8	20	
Chromium		0.489	mg/L	0.0050	97	70	130	0.9	20	
Lead		0.495	mg/L	0.0010	99	70	130	4.9	20	
Molybdenum		1.02	mg/L	0.0010	99	70	130	6.1	20	
Selenium		0.466	mg/L	0.0021	93	70	130	1.1	20	
Thallium		0.479	mg/L	0.00050	95	70	130	5.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: SUB-B266894	
Lab ID: **QCS**		Initial Calibration Verification Standard							09/12/16 14:07	
Cobalt		0.0511	mg/L	0.010	102	90	110			
Method: **E200.8**									Batch: B_102272	
Lab ID: **MB-102272**	10	Method Blank				Run: SUB-B266894			09/12/16 12:56	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		0.0003	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		8E-05	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		7E-05	mg/L	1.0E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: SUB-B266413	
Lab ID: **ICV**	Initial Calibration Verification Standard								08/31/16 15:50	
Mercury		0.0021	mg/L	0.00010	103	90	110			
Method: **E245.1**									Batch: B_102294	
Lab ID: **MB-102294**	Method Blank					Run: SUB-B266413			08/31/16 16:26	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-102294**	Laboratory Control Sample					Run: SUB-B266413			08/31/16 16:27	
Mercury		0.0020	mg/L	0.00010	100	85	115			
Lab ID: **B16082795-002BMS**	Sample Matrix Spike					Run: SUB-B266413			08/31/16 16:37	
Mercury		0.0020	mg/L	0.00010	98	70	130			
Lab ID: **B16082795-002BMSD**	Sample Matrix Spike Duplicate					Run: SUB-B266413			08/31/16 16:39	
Mercury		0.0020	mg/L	0.00010	98	70	130	0.1	30	
Lab ID: **T16080104-007B**	Sample Matrix Spike					Run: SUB-B266413			08/31/16 17:09	
Mercury		0.0020	mg/L	0.00010	102	70	130			
Lab ID: **T16080104-007B**	Sample Matrix Spike Duplicate					Run: SUB-B266413			08/31/16 17:11	
Mercury		0.0021	mg/L	0.00010	104	70	130	1.7	30	
Method: **E245.1**									Analytical Run: SUB-B266483	
Lab ID: **ICV**	Initial Calibration Verification Standard								09/01/16 15:23	
Mercury		0.0021	mg/L	0.00010	103	90	110			
Method: **E245.1**									Batch: B_102317	
Lab ID: **MB-102317**	Method Blank					Run: SUB-B266483			09/01/16 16:07	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-102317**	Laboratory Control Sample					Run: SUB-B266483			09/01/16 16:09	
Mercury		0.0020	mg/L	0.00010	100	85	115			
Lab ID: **B16082972-001BMS**	Sample Matrix Spike					Run: SUB-B266483			09/01/16 16:16	
Mercury		0.00210	mg/L	0.00010	105	70	130			
Lab ID: **B16082972-001BMSD**	Sample Matrix Spike Duplicate					Run: SUB-B266483			09/01/16 16:18	
Mercury		0.00207	mg/L	0.00010	103	70	130	1.6	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC1_160831A	
Lab ID: **ICV/LCS-W-3770**	Initial Calibration Verification Standard								08/31/16 15:59	
Sulfate		97.5	mg/L	2.0	98	90	110			
Lab ID: **ICB2**	Initial Calibration Blank, Instrument Blank								08/31/16 17:17	
Sulfate		ND	mg/L	1.0		0	0			
Method: **E300.0**									Batch: R69556	
Lab ID: **ICB**	Method Blank					Run: IC1_160831A			08/31/16 16:19	
Sulfate		ND	mg/L	0.03						
Lab ID: **LFB-3911**	Laboratory Fortified Blank					Run: IC1_160831A			08/31/16 16:38	
Sulfate		22.9	mg/L	1.0	92	90	110			
Lab ID: **LFBD-3911**	Laboratory Fortified Blank Duplicate					Run: IC1_160831A			08/31/16 16:58	
Sulfate		22.6	mg/L	1.0	90	90	110	1.6	10	
Lab ID: **T16080115-001AMS**	Sample Matrix Spike					Run: IC1_160831A			08/31/16 17:56	
Sulfate		3380	mg/L	25		90	110			A
Lab ID: **T16080115-001AMSD**	Sample Matrix Spike Duplicate					Run: IC1_160831A			08/31/16 18:15	
Sulfate		3420	mg/L	25		90	110	1.2	10	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC1_160902A	
Lab ID: **ICV/LCS-W-3770**	Initial Calibration Verification Standard								09/02/16 18:54	
Chloride		99.2	mg/L	2.0	99	90	110			
Lab ID: **ICB2**	Initial Calibration Blank, Instrument Blank								09/02/16 20:12	
Chloride		0.413	mg/L	1.0		0	0			
Method: **E300.0**									Batch: R69586	
Lab ID: **ICB**	Method Blank					Run: IC1_160902A			09/02/16 19:14	
Chloride		0.4	mg/L	0.05						
Lab ID: **LFB-3911**	Laboratory Fortified Blank					Run: IC1_160902A			09/02/16 19:33	
Chloride		24.4	mg/L	1.0	96	90	110			
Lab ID: **LFBD-3911**	Laboratory Fortified Blank Duplicate					Run: IC1_160902A			09/02/16 19:53	
Chloride		24.4	mg/L	1.0	96	90	110	0.0	10	
Lab ID: **T16080115-001AMS**	Sample Matrix Spike					Run: IC1_160902A			09/02/16 20:51	
Chloride		1260	mg/L	25	104	90	110			
Lab ID: **T16080115-001AMSD**	Sample Matrix Spike Duplicate					Run: IC1_160902A			09/02/16 21:10	
Chloride		1260	mg/L	25	104	90	110	0.1	10	
Lab ID: **T16080117-001AMS**	Sample Matrix Spike					Run: IC1_160902A			09/03/16 01:23	
Chloride		949	mg/L	25	101	90	110			
Lab ID: **T16080117-001AMSD**	Sample Matrix Spike Duplicate					Run: IC1_160902A			09/03/16 01:43	
Chloride		964	mg/L	25	104	90	110	1.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-0138
Lab ID: MB-RA226-0138	3	Method Blank				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		0.0008	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: LCS-RA226-0138		Laboratory Control Sample				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		55	pCi/L		104	80	120			
Lab ID: T16080104-002CMS		Sample Matrix Spike				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		110	pCi/L		88	70	130			
Lab ID: T16080104-002CMSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160829A				09/02/16 10:43
Total Radium as Ra226		110	pCi/L		87	70	130	1.1	20	
Method: E903.0										Batch: RA226-0139
Lab ID: MB-RA226-0139	3	Method Blank				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		0.06	pCi/L							U
Total Radium as Ra226 precision (±)		0.1	pCi/L							
Total Radium as Ra226 MDC		0.2	pCi/L							
Lab ID: LCS-RA226-0139		Laboratory Control Sample				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		55	pCi/L		103	80	120			
Lab ID: T16080104-001CMS		Sample Matrix Spike				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		110	pCi/L		81	70	130			
Lab ID: T16080104-001CMSD		Sample Matrix Spike Duplicate				Run: RAD104-CS_160829B				09/02/16 16:53
Total Radium as Ra226		110	pCi/L		81	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by College Station, TX Branch

Client: Texas Municipal Power Agency **Report Date:** 09/21/16

Project: CCRR **Work Order:** T16080104

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: C_RA228-5307
Lab ID: **LCS-228-RA228-5307**		Laboratory Control Sample				Run: SUB-C214910				09/06/16 10:35
Radium 228		8.8	pCi/L		98	80	120			
Lab ID: **MB-228-RA228-5307**	3	Method Blank				Run: SUB-C214910				09/06/16 10:35
Radium 228		0.2	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C16081142-003CMS**		Sample Matrix Spike				Run: SUB-C214910				09/06/16 12:08
Radium 228		22	pCi/L		99	70	130			
Lab ID: **C16081142-003CMSD**		Sample Matrix Spike Duplicate				Run: SUB-C214910				09/06/16 12:08
Radium 228		25	pCi/L		111	70	130	11	54.3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

Barium Recovery

Per NELAC requirement EL-V1M6-2009 1.7.2.3.c, Energy Laboratories is reporting the sample specific Barium Sulfate carrier recovery.

T16080104	Sample	Recovery	
	T16080104-001C	97.34%	
	T16080104-001C	106.80%	
	T16080104-002C	100.53%	
	T16080104-002C	101.94%	
	T16080104-003C	80.46%	
	T16080104-003C	105.05%	
	T16080104-004C	99.64%	
	T16080104-004C	101.75%	
	T16080104-005C	99.11%	
	T16080104-005C	102.72%	
	T16080104-006C	92.36%	
	T16080104-006C	103.69%	
	T16080104-007C	88.93%	
	T16080104-007C	93.07%	

9/20/2016 4:09:02 PM

Work Order Receipt Checklist

Texas Municipal Power Agency T16080104

Login completed by:	Alisha D. Griffin	Date Received:	8/25/2016
Reviewed by:	BL2000\ssuchar	Received by:	trr
Reviewed Date:	8/30/2016	Carrier name:	Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

pH check of applicable preserved fractions acceptable (Lot#3931). Per BG, log in per history (Schedule 1 & 2 as on COC), but additional analysis of Ca, Mg, Na, K, SO4, Cl. Receipt temperature checked with Thermo 1210: Cooler #R/W - read temperature = 1.2°C; no corrections. Cooler #T10920 - read temperature = 0.7°C; no corrections. ADG 160826 09:39

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
Amec Foster Wheeler	TMPA	State:	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** / **Phone/Fax:**	**Email:**	**Sampler: (Please Print)**
	Greg Seifert 512-241-2310		BG/SM
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Schedule 1 ✓ 2

SEE ATTACHED

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:
Thermo: 1210
No corrections
R/W = 1.2
T1092 = 0.7 TR
T160801O4

Shipped by: Hand

Cooler ID(s):

Receipt Temp _____ °C

On Ice: (Y) N

Custody Seal On Bottle Y N / On Cooler Y N

Intact Y N

Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	
1	SFL MW-5	8/25/16	0952	W	-001
2	SFL MW-2		1045		-002
3	SFL MW-4		1228		-003
4	SFL MW-3		1324		-004
5	SFL MW-1		1435		-005
6	SFL MW-6		1522		-006
7	EQBK 8-25		1615		-007
8					
9					
10					

2nd 2-L only 1/3 full

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Brian Gieselman	8/25/16 @ 1708	Brian Gieselman			

Received by Laboratory: Twanda Reed 8/25/16 1708

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

November 14, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B16101433 Quote ID: B3997 - CCRR

Project Name: TMPA

Energy Laboratories Inc Billings MT received the following 9 samples for Texas Municipal Power Agency on 10/19/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B16101433-001	SSP/AP MW-1	10/17/16 17:37	10/19/16	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B16101433-002	SSP MW-2	10/18/16 9:12	10/19/16	Ground Water	Same As Above
B16101433-003	SSP MW-3	10/18/16 10:23	10/19/16	Ground Water	Same As Above
B16101433-004	SSP MW-4	10/18/16 11:21	10/19/16	Ground Water	Same As Above
B16101433-005	EQBK-101816	10/18/16 12:30	10/19/16	Ground Water	Same As Above
B16101433-006	AP MW-4	10/18/16 13:54	10/19/16	Ground Water	Same As Above
B16101433-007	AP MW-5	10/18/16 14:48	10/19/16	Ground Water	Same As Above
B16101433-008	DUP-1	10/18/16 0:00	10/19/16	Ground Water	Same As Above
B16101433-009	AP MW-1D	10/18/16 15:38	10/19/16	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA
Work Order: B16101433

Report Date: 11/14/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-001
Client Sample ID: SSP/AP MW-1

Report Date: 11/14/16
Collection Date: 10/17/16 17:37
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.2	s.u.	H	0.1		A4500-H B	10/19/16 13:48 / pjw
Solids, Total Dissolved TDS @ 180 C	6750	mg/L	D	100		A2540 C	10/20/16 10:00 / jef
INORGANICS							
Chloride	1540	mg/L	D	6		E300.0	10/21/16 05:42 / mej
Sulfate	2960	mg/L	D	20		E300.0	10/21/16 05:42 / mej
Fluoride	0.2	mg/L		0.1		A4500-F C	10/20/16 14:21 / cjm
CATIONS							
Calcium	673	mg/L		1		E200.7	10/21/16 20:57 / rlh
Magnesium	147	mg/L		1		E200.7	10/21/16 20:57 / rlh
Potassium	51	mg/L		1		E200.7	10/21/16 20:57 / rlh
Sodium	1260	mg/L	D	4		E200.7	10/21/16 20:57 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:24 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	10/21/16 19:24 / jpv
Barium	ND	mg/L		0.1		E200.7	10/21/16 20:57 / rlh
Beryllium	ND	mg/L		0.001		E200.8	10/21/16 19:24 / jpv
Boron	0.93	mg/L		0.05		E200.7	10/21/16 20:57 / rlh
Cadmium	ND	mg/L		0.01		E200.8	10/21/16 19:24 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:24 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/21/16 19:24 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:24 / jpv
Lithium	1.30	mg/L	D	0.02		E200.7	10/21/16 20:57 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 11:40 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:24 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/21/16 19:24 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:24 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.97	pCi/L				E903.0	11/07/16 12:01 / eli-ca
Radium 226 precision (±)	0.21	pCi/L				E903.0	11/07/16 12:01 / eli-ca
Radium 226 MDC	0.14	pCi/L				E903.0	11/07/16 12:01 / eli-ca
Radium 228	1.2	pCi/L	U			RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	0.76	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	2.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-002
Client Sample ID: SSP MW-2

Report Date: 11/14/16
Collection Date: 10/18/16 09:12
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	5.5	s.u.	H	0.1		A4500-H B	10/19/16 13:51 / pjw
Solids, Total Dissolved TDS @ 180 C	7370	mg/L	D	100		A2540 C	10/20/16 10:00 / jef
INORGANICS							
Chloride	2610	mg/L	D	6		E300.0	10/21/16 05:56 / mej
Sulfate	2080	mg/L	D	20		E300.0	10/21/16 05:56 / mej
Fluoride	0.2	mg/L		0.1		A4500-F C	10/20/16 14:25 / cjm
CATIONS							
Calcium	931	mg/L		1		E200.7	10/21/16 21:01 / rlh
Magnesium	218	mg/L		1		E200.7	10/21/16 21:01 / rlh
Potassium	65	mg/L		1		E200.7	10/21/16 21:01 / rlh
Sodium	1280	mg/L	D	4		E200.7	10/21/16 21:01 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:27 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	10/21/16 19:27 / jpv
Barium	0.06	mg/L		0.01		E200.7	10/21/16 21:01 / rlh
Beryllium	0.016	mg/L		0.001		E200.8	10/21/16 19:27 / jpv
Boron	0.60	mg/L		0.05		E200.7	10/21/16 21:01 / rlh
Cadmium	ND	mg/L		0.01		E200.8	10/21/16 19:27 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:27 / jpv
Cobalt	0.07	mg/L		0.02		E200.8	10/21/16 19:27 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:27 / jpv
Lithium	1.07	mg/L	D	0.02		E200.7	10/21/16 21:01 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 11:46 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:27 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/21/16 19:27 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:27 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.0	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	0.28	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.14	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	0.89	pCi/L	U			RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	0.78	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	1.9	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-003
Client Sample ID: SSP MW-3

Report Date: 11/14/16
Collection Date: 10/18/16 10:23
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	10/19/16 13:54 / pjw
Solids, Total Dissolved TDS @ 180 C	6690	mg/L	D	100		A2540 C	10/20/16 10:01 / jef
INORGANICS							
Chloride	1880	mg/L	D	6		E300.0	10/21/16 06:09 / mej
Sulfate	2440	mg/L	D	20		E300.0	10/21/16 06:09 / mej
Fluoride	0.8	mg/L		0.1		A4500-F C	10/20/16 14:31 / cjm
CATIONS							
Calcium	699	mg/L		1		E200.7	10/21/16 21:04 / rlh
Magnesium	177	mg/L		1		E200.7	10/21/16 21:04 / rlh
Potassium	47	mg/L		1		E200.7	10/21/16 21:04 / rlh
Sodium	1110	mg/L	D	4		E200.7	10/21/16 21:04 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:30 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/21/16 19:30 / jpv
Barium	0.04	mg/L		0.01		E200.7	10/21/16 21:04 / rlh
Beryllium	0.120	mg/L		0.001		E200.8	10/21/16 19:30 / jpv
Boron	2.70	mg/L		0.05		E200.7	10/21/16 21:04 / rlh
Cadmium	0.05	mg/L		0.01		E200.8	10/21/16 19:30 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:30 / jpv
Cobalt	0.58	mg/L		0.02		E200.8	10/21/16 19:30 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:30 / jpv
Lithium	0.75	mg/L	D	0.02		E200.7	10/21/16 21:04 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 11:47 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:30 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/21/16 19:30 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:30 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	8.0	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	1.6	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.13	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	17	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	3.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	24.7	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	3.5	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-004
Client Sample ID: SSP MW-4

Report Date: 11/14/16
Collection Date: 10/18/16 11:21
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	10/19/16 13:56 / pjw
Solids, Total Dissolved TDS @ 180 C	3930	mg/L	D	40		A2540 C	10/20/16 10:01 / jef
INORGANICS							
Chloride	1240	mg/L	D	6		E300.0	10/21/16 16:56 / mej
Sulfate	1210	mg/L	D	20		E300.0	10/21/16 16:56 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	10/20/16 14:35 / cjm
CATIONS							
Calcium	413	mg/L		1		E200.7	10/21/16 21:08 / rlh
Magnesium	85	mg/L		1		E200.7	10/21/16 21:08 / rlh
Potassium	53	mg/L		1		E200.7	10/21/16 21:08 / rlh
Sodium	770	mg/L	D	4		E200.7	10/21/16 21:08 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:32 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/21/16 19:32 / jpv
Barium	0.03	mg/L		0.01		E200.7	10/21/16 21:08 / rlh
Beryllium	ND	mg/L		0.001		E200.8	10/21/16 19:32 / jpv
Boron	1.31	mg/L		0.05		E200.7	10/21/16 21:08 / rlh
Cadmium	ND	mg/L		0.01		E200.8	10/21/16 19:32 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:32 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/21/16 19:32 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:32 / jpv
Lithium	1.02	mg/L	D	0.02		E200.7	10/21/16 21:08 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 11:49 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:32 / jpv
Selenium	ND	mg/L		0.01		E200.8	11/07/16 15:59 / rlh
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:32 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.4	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	0.34	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.14	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	0.93	pCi/L	U			RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	0.79	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	2.3	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-005
Client Sample ID: EQBK-101816

Report Date: 11/14/16
Collection Date: 10/18/16 12:30
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	10/19/16 13:59 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/20/16 10:01 / jef
INORGANICS							
Chloride	ND	mg/L		1		E300.0	10/21/16 17:37 / mej
Sulfate	ND	mg/L		1		E300.0	10/21/16 17:37 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	10/20/16 14:44 / cjm
CATIONS							
Calcium	ND	mg/L		1		E200.7	10/21/16 21:11 / rlh
Magnesium	ND	mg/L		1		E200.7	10/21/16 21:11 / rlh
Potassium	ND	mg/L		1		E200.7	10/21/16 21:11 / rlh
Sodium	ND	mg/L		1		E200.7	10/21/16 21:11 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:35 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/21/16 19:35 / jpv
Barium	ND	mg/L		0.01		E200.7	10/21/16 21:11 / rlh
Beryllium	ND	mg/L		0.001		E200.7	10/21/16 21:11 / rlh
Boron	ND	mg/L		0.05		E200.7	10/21/16 21:11 / rlh
Cadmium	ND	mg/L		0.01		E200.7	10/21/16 21:11 / rlh
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:35 / jpv
Cobalt	ND	mg/L		0.02		E200.7	10/21/16 21:11 / rlh
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:35 / jpv
Lithium	ND	mg/L		0.01		E200.7	10/21/16 21:11 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 11:51 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:35 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/21/16 19:35 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:35 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.07	pCi/L	U			E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	0.09	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.14	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	0.51	pCi/L	U			RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	0.80	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-006
Client Sample ID: AP MW-4

Report Date: 11/14/16
Collection Date: 10/18/16 13:54
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	10/19/16 14:01 / pjw
Solids, Total Dissolved TDS @ 180 C	4150	mg/L	D	40		A2540 C	10/20/16 10:01 / jef
INORGANICS							
Chloride	511	mg/L	D	3		E300.0	10/21/16 17:50 / mej
Sulfate	2290	mg/L	D	9		E300.0	10/21/16 17:50 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	10/20/16 14:48 / cjm
CATIONS							
Calcium	538	mg/L		1		E200.7	10/21/16 21:15 / rlh
Magnesium	125	mg/L		1		E200.7	10/21/16 21:15 / rlh
Potassium	49	mg/L		1		E200.7	10/21/16 21:15 / rlh
Sodium	564	mg/L	D	4		E200.7	10/21/16 21:15 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:38 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/21/16 19:38 / jpv
Barium	0.02	mg/L		0.01		E200.7	10/21/16 21:15 / rlh
Beryllium	ND	mg/L		0.001		E200.8	10/21/16 19:38 / jpv
Boron	2.10	mg/L		0.05		E200.7	10/21/16 21:15 / rlh
Cadmium	ND	mg/L		0.01		E200.8	10/21/16 19:38 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:38 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/21/16 19:38 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:38 / jpv
Lithium	1.09	mg/L	D	0.02		E200.7	10/21/16 21:15 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 11:53 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:38 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/21/16 19:38 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:38 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.96	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.13	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	1.3	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	0.97	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	2.3	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-007
Client Sample ID: AP MW-5

Report Date: 11/14/16
Collection Date: 10/18/16 14:48
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	3.7	s.u.	H	0.1		A4500-H B	10/19/16 14:04 / pjw
Solids, Total Dissolved TDS @ 180 C	5040	mg/L	D	40		A2540 C	10/20/16 10:01 / jef
INORGANICS							
Chloride	451	mg/L	D	6		E300.0	10/21/16 18:04 / mej
Sulfate	2630	mg/L	D	20		E300.0	10/21/16 18:04 / mej
Fluoride	1.3	mg/L		0.1		A4500-F C	10/20/16 14:56 / cjm
CATIONS							
Calcium	503	mg/L		1		E200.7	10/21/16 21:18 / rlh
Magnesium	115	mg/L		1		E200.7	10/21/16 21:18 / rlh
Potassium	39	mg/L		1		E200.7	10/21/16 21:18 / rlh
Sodium	672	mg/L	D	4		E200.7	10/21/16 21:18 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:40 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	10/21/16 19:40 / jpv
Barium	0.02	mg/L		0.01		E200.7	10/21/16 21:18 / rlh
Beryllium	0.087	mg/L		0.001		E200.8	10/21/16 19:40 / jpv
Boron	3.33	mg/L		0.05		E200.7	10/21/16 21:18 / rlh
Cadmium	ND	mg/L		0.01		E200.8	10/21/16 19:40 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:40 / jpv
Cobalt	0.18	mg/L		0.02		E200.8	10/21/16 19:40 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:40 / jpv
Lithium	0.60	mg/L	D	0.02		E200.7	10/21/16 21:18 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/24/16 13:42 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:40 / jpv
Selenium	0.01	mg/L		0.01		E200.8	11/10/16 16:10 / rlh
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:40 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.8	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	0.43	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.13	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	3.4	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	5.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-008
Client Sample ID: DUP-1

Report Date: 11/14/16
Collection Date: 10/18/16
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	10/19/16 14:07 / pjw
Solids, Total Dissolved TDS @ 180 C	3780	mg/L	D	40		A2540 C	10/20/16 10:01 / jef
INORGANICS							
Chloride	1210	mg/L	D	6		E300.0	10/21/16 18:17 / mej
Sulfate	1190	mg/L	D	20		E300.0	10/21/16 18:17 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	10/20/16 14:59 / cjm
CATIONS							
Calcium	398	mg/L		1		E200.7	10/21/16 21:22 / rlh
Magnesium	81	mg/L		1		E200.7	10/21/16 21:22 / rlh
Potassium	52	mg/L		1		E200.7	10/21/16 21:22 / rlh
Sodium	740	mg/L	D	4		E200.7	10/21/16 21:22 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:51 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/21/16 19:51 / jpv
Barium	0.03	mg/L		0.01		E200.7	10/21/16 21:22 / rlh
Beryllium	ND	mg/L		0.001		E200.8	10/21/16 19:51 / jpv
Boron	1.29	mg/L		0.05		E200.7	10/21/16 21:22 / rlh
Cadmium	ND	mg/L		0.01		E200.8	10/21/16 19:51 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:51 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/21/16 19:51 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:51 / jpv
Lithium	1.00	mg/L	D	0.02		E200.7	10/21/16 21:22 / rlh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 12:01 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:51 / jpv
Selenium	ND	mg/L		0.001		E200.8	11/07/16 16:02 / rlh
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:51 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	2.1	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	0.51	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	2.4	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	0.96	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	4.5	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA
Lab ID: B16101433-009
Client Sample ID: AP MW-1D

Report Date: 11/14/16
Collection Date: 10/18/16 15:38
DateReceived: 10/19/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.0	s.u.	H	0.1		A4500-H B	10/19/16 14:09 / pjw
Solids, Total Dissolved TDS @ 180 C	1410	mg/L	D	20		A2540 C	10/20/16 10:02 / jef
INORGANICS							
Chloride	233	mg/L		1		E300.0	10/21/16 18:31 / mej
Sulfate	590	mg/L	D	4		E300.0	10/21/16 18:31 / mej
Fluoride	0.6	mg/L		0.1		A4500-F C	10/20/16 15:15 / cjm
CATIONS							
Calcium	77	mg/L		1		E200.7	10/21/16 21:26 / rlh
Magnesium	14	mg/L		1		E200.7	10/21/16 21:26 / rlh
Potassium	11	mg/L		1		E200.7	10/21/16 21:26 / rlh
Sodium	323	mg/L		1		E200.7	10/21/16 21:26 / rlh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/21/16 19:54 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	10/21/16 19:54 / jpv
Barium	0.02	mg/L		0.01		E200.7	10/21/16 21:26 / rlh
Beryllium	ND	mg/L		0.001		E200.7	10/21/16 21:26 / rlh
Boron	4.62	mg/L		0.05		E200.7	10/21/16 21:26 / rlh
Cadmium	ND	mg/L		0.01		E200.8	10/21/16 19:54 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/21/16 19:54 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/21/16 19:54 / jpv
Lead	ND	mg/L		0.01		E200.8	10/21/16 19:54 / jpv
Lithium	0.05	mg/L		0.01		E200.7	11/10/16 16:13 / jh
Mercury	ND	mg/L		0.001		E245.1	10/20/16 12:03 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/21/16 19:54 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/21/16 19:54 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/21/16 19:54 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.53	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 precision (±)	0.17	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	11/07/16 13:53 / eli-ca
Radium 228	2.3	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	11/02/16 13:13 / eli-ca
Radium 226 + Radium 228	2.8	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Report Date: 11/09/16
Project: TMPA
Work Order: B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-8302
Lab ID: LCS-RA226-8302		Laboratory Control Sample				Run: TENNELEC-3_161026C				11/07/16 12:01
Radium 226		10	pCi/L		96	80	120			
Lab ID: MB-RA226-8302	3	Method Blank				Run: TENNELEC-3_161026C				11/07/16 12:01
Radium 226		0.2	pCi/L							
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C16100328-004GMS		Sample Matrix Spike				Run: TENNELEC-3_161026C				11/07/16 12:01
Radium 226		23	pCi/L		88	70	130			
Lab ID: C16100328-004GMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_161026C				11/07/16 12:01
Radium 226		25	pCi/L		94	70	130	6.7	20	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Report Date: 11/09/16
Project: TMPA
Work Order: B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: RA228-5350
Lab ID: **LCS-228-RA226-8302**		Laboratory Control Sample				Run: TENNELEC-3_161026A				11/02/16 11:35
Radium 228		7.7	pCi/L		90	80	120			
Lab ID: **MB-RA226-8302**	3	Method Blank				Run: TENNELEC-3_161026A				11/02/16 11:35
Radium 228		-0.02	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **C16100328-004GMS**		Sample Matrix Spike				Run: TENNELEC-3_161026A				11/02/16 11:35
Radium 228		25	pCi/L		105	70	130			
Lab ID: **C16100328-004GMSD**		Sample Matrix Spike Duplicate				Run: TENNELEC-3_161026A				11/02/16 11:35
Radium 228		22	pCi/L		92	70	130	13	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/14/16

Project: TMPA **Work Order:** B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_161021A	
Lab ID: ICV	10	Continuing Calibration Verification Standard							10/21/16 10:47	
Barium		2.48	mg/L	0.10	99	95	105			
Beryllium		1.24	mg/L	0.010	99	95	105			
Boron		2.49	mg/L	0.10	100	95	105			
Cadmium		2.44	mg/L	0.010	98	95	105			
Calcium		25.3	mg/L	1.0	101	95	105			
Cobalt		2.44	mg/L	0.020	98	95	105			
Lithium		1.29	mg/L	0.10	104	95	105			
Magnesium		25.8	mg/L	1.0	103	95	105			
Potassium		25.4	mg/L	1.0	102	95	105			
Sodium		25.4	mg/L	1.0	102	95	105			
Method: E200.7									Batch: 103766	
Lab ID: MB-103766	10	Method Blank				Run: ICP203-B_161021A			10/21/16 20:25	
Barium		0.0005	mg/L	0.0003						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0008						
Calcium		ND	mg/L	0.03						
Cobalt		0.002	mg/L	0.001						
Lithium		0.01	mg/L	0.002						
Magnesium		ND	mg/L	0.004						
Potassium		ND	mg/L	0.08						
Sodium		ND	mg/L	0.02						
Lab ID: LCS-103766	10	Laboratory Control Sample				Run: ICP203-B_161021A			10/21/16 20:29	
Barium		0.539	mg/L	0.10	108	85	115			
Beryllium		0.271	mg/L	0.010	108	85	115			
Boron		0.514	mg/L	0.10	103	85	115			
Cadmium		0.256	mg/L	0.010	103	85	115			
Calcium		26.2	mg/L	1.0	105	85	115			
Cobalt		0.512	mg/L	0.050	102	85	115			
Lithium		0.529	mg/L	0.10	104	85	115			
Magnesium		26.2	mg/L	1.0	105	85	115			
Potassium		25.1	mg/L	1.0	100	85	115			
Sodium		26.3	mg/L	1.0	105	85	115			
Lab ID: B16101406-001BMS3	10	Sample Matrix Spike				Run: ICP203-B_161021A			10/21/16 20:43	
Barium		0.916	mg/L	0.050	99	70	130			
Beryllium		0.258	mg/L	0.0010	103	70	130			
Boron		0.873	mg/L	0.050	94	70	130			
Cadmium		0.237	mg/L	0.0039	95	70	130			
Calcium		63.6	mg/L	1.0	97	70	130			
Cobalt		0.495	mg/L	0.0063	96	70	130			
Lithium		1.19	mg/L	0.10	90	70	130			
Magnesium		46.5	mg/L	1.0	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/14/16

Project: TMPA **Work Order:** B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Batch: 103766	
Lab ID: **B16101406-001BMS3**	10	Sample Matrix Spike				Run: ICP203-B_161021A			10/21/16 20:43	
Potassium		40.0	mg/L	1.0	92	70	130			
Sodium		633	mg/L	1.8		70	130			A
Lab ID: **B16101406-001BMSD**	10	Sample Matrix Spike Duplicate				Run: ICP203-B_161021A			10/21/16 20:46	
Barium		0.869	mg/L	0.050	90	70	130	5.2	20	
Beryllium		0.243	mg/L	0.0010	97	70	130	5.8	20	
Boron		0.809	mg/L	0.050	81	70	130	7.5	20	
Cadmium		0.242	mg/L	0.0039	97	70	130	2.3	20	
Calcium		60.6	mg/L	1.0	85	70	130	4.9	20	
Cobalt		0.493	mg/L	0.0063	96	70	130	0.2	20	
Lithium		1.13	mg/L	0.10	78	70	130	5.0	20	
Magnesium		44.0	mg/L	1.0	88	70	130	5.5	20	
Potassium		38.4	mg/L	1.0	86	70	130	3.9	20	
Sodium		596	mg/L	1.8		70	130	6.0	20	A
Method: **E200.7**									Analytical Run: ICP203-B_161110A	
Lab ID: **ICV**		Continuing Calibration Verification Standard							11/10/16 14:36	
Lithium		1.25	mg/L	0.10	100	95	105			
Method: **E200.7**									Batch: 103766	
Lab ID: **MB-103766**		Method Blank				Run: ICP203-B_161110A			11/10/16 16:09	
Lithium		0.005	mg/L	0.002						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/14/16

Project: TMPA **Work Order:** B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_161021A	
Lab ID: QCS	10	Initial Calibration Verification Standard							10/21/16 17:23	
Antimony		0.0520	mg/L	0.050	104	90	110			
Arsenic		0.0513	mg/L	0.0050	103	90	110			
Beryllium		0.0242	mg/L	0.0010	97	90	110			
Cadmium		0.0266	mg/L	0.0010	106	90	110			
Chromium		0.0520	mg/L	0.010	104	90	110			
Cobalt		0.0511	mg/L	0.010	102	90	110			
Lead		0.0486	mg/L	0.010	97	90	110			
Molybdenum		0.0483	mg/L	0.0050	97	90	110			
Selenium		0.0497	mg/L	0.0050	99	90	110			
Thallium		0.0486	mg/L	0.10	97	90	110			
Method: E200.8									Batch: 103766	
Lab ID: MB-103766	10	Method Blank				Run: ICPMS206-B_161021A			10/21/16 19:00	
Antimony		ND	mg/L	3E-05						
Arsenic		0.0001	mg/L	7E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		5E-05	mg/L	4E-05						
Cobalt		2E-05	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		8E-05	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: LCS-103766	10	Laboratory Control Sample				Run: ICPMS206-B_161021A			10/21/16 19:06	
Antimony		0.530	mg/L	0.0050	106	85	115			
Arsenic		0.532	mg/L	0.0010	106	85	115			
Beryllium		0.237	mg/L	0.0010	95	85	115			
Cadmium		0.263	mg/L	0.0010	105	85	115			
Chromium		0.478	mg/L	0.0010	96	85	115			
Cobalt		0.484	mg/L	0.0010	97	85	115			
Lead		0.488	mg/L	0.0010	98	85	115			
Molybdenum		0.483	mg/L	0.0050	97	85	115			
Selenium		0.500	mg/L	0.0050	100	85	115			
Thallium		0.487	mg/L	0.0010	97	85	115			
Lab ID: B16101406-001BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_161021A			10/21/16 19:16	
Antimony		0.513	mg/L	0.0010	102	70	130			
Arsenic		0.834	mg/L	0.0010	109	70	130			
Beryllium		0.231	mg/L	0.0010	92	70	130			
Cadmium		0.247	mg/L	0.0010	99	70	130			
Chromium		0.469	mg/L	0.0050	94	70	130			
Cobalt		0.462	mg/L	0.0050	92	70	130			
Lead		0.456	mg/L	0.0010	91	70	130			
Molybdenum		0.477	mg/L	0.0010	95	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/14/16

Project: TMPA **Work Order:** B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 103766
Lab ID: B16101406-001BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_161021A				10/21/16 19:16
Selenium		0.482	mg/L	0.0010	96	70	130			
Thallium		0.429	mg/L	0.00050	86	70	130			
Lab ID: B16101406-001BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161021A				10/21/16 19:19
Antimony		0.534	mg/L	0.0010	107	70	130	4.1	20	
Arsenic		0.882	mg/L	0.0010	118	70	130	5.6	20	
Beryllium		0.251	mg/L	0.0010	100	70	130	8.5	20	
Cadmium		0.267	mg/L	0.0010	107	70	130	7.6	20	
Chromium		0.502	mg/L	0.0050	100	70	130	6.9	20	
Cobalt		0.496	mg/L	0.0050	99	70	130	7.1	20	
Lead		0.489	mg/L	0.0010	98	70	130	7.1	20	
Molybdenum		0.505	mg/L	0.0010	101	70	130	5.7	20	
Selenium		0.510	mg/L	0.0010	102	70	130	5.6	20	
Thallium		0.467	mg/L	0.00050	93	70	130	8.5	20	
Lab ID: B16101436-005CMS3	10	Sample Matrix Spike				Run: ICPMS206-B_161021A				10/21/16 20:07
Antimony		0.528	mg/L	0.0010	106	70	130			
Arsenic		0.530	mg/L	0.0010	106	70	130			
Beryllium		0.234	mg/L	0.0010	94	70	130			
Cadmium		0.251	mg/L	0.0010	101	70	130			
Chromium		0.474	mg/L	0.0050	95	70	130			
Cobalt		0.477	mg/L	0.0050	95	70	130			
Lead		0.469	mg/L	0.0010	94	70	130			
Molybdenum		0.519	mg/L	0.0010	96	70	130			
Selenium		0.480	mg/L	0.0010	96	70	130			
Thallium		0.484	mg/L	0.00050	97	70	130			
Lab ID: B16101436-005CMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161021A				10/21/16 20:10
Antimony		0.510	mg/L	0.0010	102	70	130	3.5	20	
Arsenic		0.498	mg/L	0.0010	99	70	130	6.3	20	
Beryllium		0.227	mg/L	0.0010	91	70	130	3.2	20	
Cadmium		0.241	mg/L	0.0010	96	70	130	4.4	20	
Chromium		0.444	mg/L	0.0050	89	70	130	6.5	20	
Cobalt		0.455	mg/L	0.0050	91	70	130	4.8	20	
Lead		0.468	mg/L	0.0010	94	70	130	0.2	20	
Molybdenum		0.499	mg/L	0.0010	92	70	130	3.9	20	
Selenium		0.484	mg/L	0.0010	97	70	130	0.8	20	
Thallium		0.465	mg/L	0.00050	93	70	130	3.9	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/14/16

Project: TMPA **Work Order:** B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS206-B_161107A	
Lab ID: **QCS**		Initial Calibration Verification Standard							11/07/16 15:33	
Selenium		0.0465	mg/L	0.0050	93	90	110			
Method: **E200.8**									Batch: 103766	
Lab ID: **MB-103766**		Method Blank				Run: ICPMS206-B_161107A			11/07/16 15:46	
Selenium		ND	mg/L	0.0004						
Method: **E200.8**									Analytical Run: ICPMS206-B_161110A	
Lab ID: **QCS**		Initial Calibration Verification Standard							11/10/16 10:57	
Selenium		0.0469	mg/L	0.0050	94	90	110			
Method: **E200.8**									Batch: 103766	
Lab ID: **MB-103766**		Method Blank				Run: ICPMS206-B_161110A			11/10/16 16:02	
Selenium		ND	mg/L	0.0004						

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/14/16

Project: TMPA **Work Order:** B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_161020A	
Lab ID: **ICV**		Initial Calibration Verification Standard							10/20/16 11:15	
Mercury		0.00207	mg/L	0.00010	104	90	110			
Method: **E245.1**									Batch: 103757	
Lab ID: **MB-103757**		Method Blank				Run: HGCV202-B_161020A			10/20/16 11:36	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-103757**		Laboratory Control Sample				Run: HGCV202-B_161020A			10/20/16 11:38	
Mercury		0.00196	mg/L	0.00010	98	85	115			
Lab ID: **B16101433-001BMS**		Sample Matrix Spike				Run: HGCV202-B_161020A			10/20/16 11:42	
Mercury		0.00200	mg/L	0.00010	100	70	130			
Lab ID: **B16101433-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161020A			10/20/16 11:44	
Mercury		0.00201	mg/L	0.00010	100	70	130	0.6	30	
Lab ID: **B16101436-005CMS**		Sample Matrix Spike				Run: HGCV202-B_161020A			10/20/16 12:12	
Mercury		0.00203	mg/L	0.00010	102	70	130			
Lab ID: **B16101436-005CMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161020A			10/20/16 12:14	
Mercury		0.00203	mg/L	0.00010	101	70	130	0.1	30	
Method: **E245.1**									Analytical Run: HGCV202-B_161024A	
Lab ID: **ICV**		Initial Calibration Verification Standard							10/24/16 12:25	
Mercury		0.00206	mg/L	0.00010	103	90	110			
Method: **E245.1**									Batch: 103847	
Lab ID: **MB-103847**		Method Blank				Run: HGCV202-B_161024A			10/24/16 13:38	
Mercury		5E-05	mg/L	4E-06						
Lab ID: **LCS-103847**		Laboratory Control Sample				Run: HGCV202-B_161024A			10/24/16 13:40	
Mercury		0.00203	mg/L	0.00010	99	85	115			
Lab ID: **B16101692-004BMS**		Sample Matrix Spike				Run: HGCV202-B_161024A			10/24/16 13:57	
Mercury		0.00202	mg/L	0.00010	99	70	130			
Lab ID: **B16101692-004BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161024A			10/24/16 13:59	
Mercury		0.00204	mg/L	0.00010	100	70	130	0.9	30	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 11/04/16
Project: TMPA
Work Order: B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 103794
Lab ID: MB-103794		Method Blank				Run: BAL #SD-15_161020A				10/20/16 09:59
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: LCS-103794		Laboratory Control Sample				Run: BAL #SD-15_161020A				10/20/16 09:59
Solids, Total Dissolved TDS @ 180 C		979	mg/L	10	96	90	110			
Lab ID: B16101406-001A DUP		Sample Duplicate				Run: BAL #SD-15_161020A				10/20/16 10:00
Solids, Total Dissolved TDS @ 180 C		1710	mg/L	20				2.2	5	
Lab ID: B16101433-009A DUP		Sample Duplicate				Run: BAL #SD-15_161020A				10/20/16 10:02
Solids, Total Dissolved TDS @ 180 C		1420	mg/L	20				0.4	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/04/16

Project: TMPA **Work Order:** B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_161020A	
Lab ID: **ICV**		Initial Calibration Verification Standard							10/20/16 14:07	
Fluoride		1.01	mg/L	0.10	101	90	110			
Method: **A4500-F C**									Batch: R269038	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_161020A			10/20/16 14:01	
Fluoride		ND	mg/L	0.03						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_161020A			10/20/16 14:04	
Fluoride		0.990	mg/L	0.10	99	90	110			
Lab ID: **B16101406-001AMS**		Sample Matrix Spike				Run: MAN-TECH_161020A			10/20/16 14:12	
Fluoride		3.46	mg/L	0.10	103	80	120			
Lab ID: **B16101406-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_161020A			10/20/16 14:15	
Fluoride		3.44	mg/L	0.10	101	80	120	0.6	10	
Lab ID: **B16101433-009AMS**		Sample Matrix Spike				Run: MAN-TECH_161020A			10/20/16 15:18	
Fluoride		1.62	mg/L	0.10	100	80	120			
Lab ID: **B16101433-009AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_161020A			10/20/16 15:20	
Fluoride		1.63	mg/L	0.10	101	80	120	0.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 11/04/16
Project: TMPA
Work Order: B16101433

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_161019A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								10/19/16 08:52	
pH		7.97	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R268902	
Lab ID: **B16101433-009ADUP**	Sample Duplicate					Run: PHSC _101-B_161019A			10/19/16 14:12	
pH		6.05	s.u.	0.10				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/04/16

Project: TMPA **Work Order:** B16101433

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 1_161020A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							10/20/16 14:12	
Chloride			2.23	mg/L	1.0	99	90	110			
Sulfate			8.84	mg/L	1.0	98	90	110			
Method:	**E300.0**									Batch: R269049	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 1_161020A			10/20/16 14:25	
Chloride			ND	mg/L	0.008						
Sulfate			ND	mg/L	0.06						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_161020A			10/20/16 14:39	
Chloride			10.2	mg/L	1.0	102	90	110			
Sulfate			30.5	mg/L	1.0	102	90	110			
Lab ID:	**B16101382-003AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_161020A			10/21/16 04:08	
Chloride			1060	mg/L	6.1	104	90	110			
Sulfate			3490	mg/L	18	104	90	110			
Lab ID:	**B16101382-003AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_161020A			10/21/16 04:21	
Chloride			1060	mg/L	6.1	105	90	110	0.6	20	
Sulfate			3510	mg/L	18	105	90	110	0.6	20	
Lab ID:	**B16101433-004AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_161020A			10/21/16 17:10	
Chloride			2190	mg/L	6.1	95	90	110			
Sulfate			4280	mg/L	18	102	90	110			
Lab ID:	**B16101433-004AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_161020A			10/21/16 17:23	
Chloride			2170	mg/L	6.1	93	90	110	0.7	20	
Sulfate			4220	mg/L	18	100	90	110	1.2	20	
Lab ID:	**B16101516-005AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_161020A			10/21/16 23:27	
Chloride			306	mg/L	1.2	102	90	110			
Sulfate			1320	mg/L	3.7	94	90	110			
Lab ID:	**B16101516-005AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_161020A			10/21/16 23:41	
Chloride			304	mg/L	1.2	102	90	110	0.5	20	
Sulfate			1310	mg/L	3.7	93	90	110	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency

B16101433

Login completed by: Gina McCartney
Date Received: 10/19/2016

Reviewed by: BL2000\cindy
Received by: qej

Reviewed Date: 10/20/2016
Carrier name: Return-UPS NDA N/C

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Container Temperature for Cooler 1 was 11.2°C no ice and Cooler 3 was 11.2°C no ice. Coolers 1 and 3 contained Radio Chemistry analysis.

Temperature Blank temperature for Cooler 2 was 0.4°C on ice.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin / State:	EPA/State Compliance:
Amec Foster Wheeler	TMPA		Yes ☐ No ☐
Report Mail Address:	**Contact Name: Phone/Fax:**	**Email:**	**Sampler: (Please Print)**
3755 S. Capital of TX Hwy., #375 Austin, TX 78704	~~Morris Barney~~ Greg Seifert 512-241-2310	greg.seifert@amecfw.com	BG/SM
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data) Format: _____
☐ POTW/WWTP ☐ LEVEL IV
☐ State: _____ ☐ NELAC
☐ Other: _____

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT) — RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: ~~Table~~ 14
~~Therm: 1011~~
~~No Correction~~

Shipped by: Hand
Cooler ID(s):
Receipt Temp _____ °C
On Ice: (Y) N
Custody Seal: On Bottle Y (N) / On Cooler Y
Intact Y
Signature Match Y

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Schedule 1&2	SEE ATTACHED		LABORATORY USE ONLY
1	SSP/AP MW-1	10/17/16	1737	W	X	X		B610143300 1
2	SSP MW-2	10/18/16	0912		X	X		002
3	SSP MW-3		1023		X	X		003
4	SSP MW-4		1121		X	X		004
5	EQBK-1018/6		1230		X	X		005
6	AP MW-4		1354		X	X		006
7	AP MW-5		1448		X	X		007
8	DUP-1		—		X	X		008
9	AP MW-1D		1538		X	X		009
10								

Custody Record MUST be Signed

	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Brian Gieselman	10/18/16 @1654	Brian Gieselman	TwanderReed	10/18/16 1654	TwanderReed
	TwanderReed	10/18/16 1713	TwanderReed	Quinn Jans	10/19/16 09:15	
				Received by Laboratory: TwanderReed	10/18/16 1654	TwanderReed

Sample Disposal: Return to Client: _____ Lab Disposal: _____

TR 10/19

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

November 10, 2016

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B16101734 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 8 samples for Texas Municipal Power Agency on 10/21/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B16101734-001	SFL MW-4	10/19/16 9:13	10/21/16	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B16101734-002	SFL MW-3	10/19/16 10:37	10/21/16	Ground Water	Same As Above
B16101734-004	SFL MW-2	10/19/16 13:50	10/21/16	Ground Water	Same As Above
B16101734-005	Dup-2	10/19/16 0:00	10/21/16	Ground Water	Same As Above
B16101734-006	EQBK-101916	10/19/16 13:00	10/21/16	Ground Water	Same As Above
B16101734-007	SFL MW-5	10/19/16 14:30	10/21/16	Ground Water	Same As Above
B16101734-008	SFL MW-6	10/19/16 15:17	10/21/16	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B16101734

Report Date: 11/10/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B16101734-001
Client Sample ID: SFL MW-4

Report Date: 11/10/16
Collection Date: 10/19/16 09:13
DateReceived: 10/21/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	10/23/16 17:06 / ldv
Solids, Total Dissolved TDS @ 180 C	5850	mg/L	D	100		A2540 C	10/24/16 11:38 / ks
INORGANICS							
Chloride	1750	mg/L	D	6		E300.0	10/28/16 03:52 / jpv
Sulfate	2190	mg/L	D	20		E300.0	10/28/16 03:52 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	10/26/16 11:46 / cjm
CATIONS							
Calcium	826	mg/L		1		E200.7	10/27/16 01:41 / jh
Magnesium	126	mg/L		1		E200.7	10/27/16 01:41 / jh
Potassium	56	mg/L		1		E200.7	10/27/16 01:41 / jh
Sodium	1090	mg/L	D	4		E200.7	10/27/16 01:41 / jh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/25/16 17:09 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/26/16 20:45 / jpv
Barium	0.03	mg/L		0.01		E200.8	10/25/16 17:09 / jpv
Beryllium	ND	mg/L		0.001		E200.8	10/25/16 17:09 / jpv
Boron	0.69	mg/L		0.05		E200.7	10/27/16 01:41 / jh
Cadmium	ND	mg/L		0.01		E200.8	10/25/16 17:09 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/26/16 20:45 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/25/16 17:09 / jpv
Lead	ND	mg/L		0.01		E200.8	10/25/16 17:09 / jpv
Lithium	0.52	mg/L	D	0.02		E200.7	10/27/16 01:41 / jh
Mercury	ND	mg/L		0.001		E245.1	10/25/16 13:45 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/25/16 17:09 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/26/16 20:45 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/25/16 17:09 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 precision (±)	0.30	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 228	3.2	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 226 + Radium 228	4.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B16101734-002
Client Sample ID: SFL MW-3

Report Date: 11/10/16
Collection Date: 10/19/16 10:37
DateReceived: 10/21/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	3.8	s.u.	H	0.1		A4500-H B	10/23/16 14:53 / ldv
Solids, Total Dissolved TDS @ 180 C	5010	mg/L	D	100		A2540 C	10/24/16 11:39 / ks
INORGANICS							
Chloride	1480	mg/L	D	6		E300.0	10/28/16 04:06 / jpv
Sulfate	2170	mg/L	D	20		E300.0	10/28/16 04:06 / jpv
Fluoride	0.5	mg/L		0.1		A4500-F C	10/26/16 11:54 / cjm
CATIONS							
Calcium	727	mg/L		1		E200.7	10/27/16 01:45 / jh
Magnesium	135	mg/L		1		E200.7	10/27/16 01:45 / jh
Potassium	55	mg/L		1		E200.7	10/27/16 01:45 / jh
Sodium	954	mg/L	D	4		E200.7	10/27/16 01:45 / jh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/25/16 17:12 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/25/16 17:12 / jpv
Barium	0.05	mg/L		0.01		E200.8	10/25/16 17:12 / jpv
Beryllium	0.034	mg/L		0.001		E200.8	10/25/16 17:12 / jpv
Boron	2.87	mg/L		0.05		E200.7	10/27/16 01:45 / jh
Cadmium	ND	mg/L		0.01		E200.8	10/25/16 17:12 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/26/16 20:47 / jpv
Cobalt	0.07	mg/L		0.02		E200.8	10/25/16 17:12 / jpv
Lead	0.03	mg/L		0.01		E200.8	10/25/16 17:12 / jpv
Lithium	0.44	mg/L	D	0.02		E200.7	10/27/16 01:45 / jh
Mercury	0.003	mg/L		0.001		E245.1	10/25/16 13:51 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/25/16 17:12 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/26/16 20:47 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/25/16 17:12 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	4.1	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 precision (±)	0.89	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 228	5.9	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 226 + Radium 228	10.0	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.8	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B16101734-004
Client Sample ID: SFL MW-2

Report Date: 11/10/16
Collection Date: 10/19/16 13:50
DateReceived: 10/21/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.4	s.u.	H	0.1		A4500-H B	10/23/16 17:14 / ldv
Solids, Total Dissolved TDS @ 180 C	6480	mg/L	D	100		A2540 C	10/24/16 11:39 / ks
INORGANICS							
Chloride	2790	mg/L	D	6		E300.0	10/28/16 05:02 / jpv
Sulfate	1980	mg/L	D	20		E300.0	10/28/16 05:02 / jpv
Fluoride	0.2	mg/L		0.1		A4500-F C	10/26/16 12:07 / cjm
CATIONS							
Calcium	944	mg/L		1		E200.7	10/27/16 01:52 / jh
Magnesium	147	mg/L		1		E200.7	10/27/16 01:52 / jh
Potassium	52	mg/L		1		E200.7	10/27/16 01:52 / jh
Sodium	1590	mg/L	D	4		E200.7	10/27/16 01:52 / jh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/25/16 17:25 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/26/16 20:52 / jpv
Barium	0.03	mg/L		0.01		E200.8	10/25/16 17:25 / jpv
Beryllium	0.002	mg/L		0.001		E200.8	10/25/16 17:25 / jpv
Boron	0.57	mg/L		0.05		E200.7	10/27/16 01:52 / jh
Cadmium	ND	mg/L		0.01		E200.8	10/25/16 17:25 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/26/16 20:52 / jpv
Cobalt	0.02	mg/L		0.02		E200.8	10/25/16 17:25 / jpv
Lead	ND	mg/L		0.01		E200.8	10/25/16 17:25 / jpv
Lithium	0.58	mg/L	D	0.02		E200.7	10/27/16 01:52 / jh
Mercury	ND	mg/L		0.001		E245.1	10/25/16 13:55 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/25/16 17:25 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/26/16 20:52 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/25/16 17:25 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	4.3	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 precision (±)	0.91	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 228	8.6	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 228 precision (±)	2.0	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 226 + Radium 228	12.9	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	2.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B16101734-005
Client Sample ID: Dup-2

Report Date: 11/10/16
Collection Date: 10/19/16
DateReceived: 10/21/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	10/23/16 17:17 / ldv
Solids, Total Dissolved TDS @ 180 C	5420	mg/L	D	100		A2540 C	10/24/16 11:39 / ks
INORGANICS							
Chloride	1730	mg/L	D	6		E300.0	10/28/16 05:16 / jpv
Sulfate	2180	mg/L	D	20		E300.0	10/28/16 05:16 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	10/26/16 12:11 / cjm
CATIONS							
Calcium	838	mg/L		1		E200.7	10/27/16 01:56 / jh
Magnesium	127	mg/L		1		E200.7	10/27/16 01:56 / jh
Potassium	58	mg/L		1		E200.7	10/27/16 01:56 / jh
Sodium	1120	mg/L	D	4		E200.7	10/27/16 01:56 / jh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/25/16 17:28 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/26/16 20:55 / jpv
Barium	0.03	mg/L		0.01		E200.8	10/25/16 17:28 / jpv
Beryllium	ND	mg/L		0.001		E200.8	10/25/16 17:28 / jpv
Boron	0.66	mg/L		0.05		E200.7	10/27/16 01:56 / jh
Cadmium	ND	mg/L		0.01		E200.8	10/25/16 17:28 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/26/16 20:55 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/25/16 17:28 / jpv
Lead	ND	mg/L		0.01		E200.8	10/25/16 17:28 / jpv
Lithium	0.54	mg/L	D	0.02		E200.7	10/27/16 01:56 / jh
Mercury	ND	mg/L		0.001		E245.1	10/25/16 13:57 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/25/16 17:28 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/26/16 20:55 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/25/16 17:28 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 precision (±)	0.30	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	11/07/16 11:20 / eli-ca
Radium 228	2.6	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 226 + Radium 228	3.7	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B16101734-006
Client Sample ID: EQBK-101916

Report Date: 11/10/16
Collection Date: 10/19/16 13:00
DateReceived: 10/21/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	10/23/16 17:19 / ldv
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/24/16 11:39 / ks
INORGANICS							
Chloride	ND	mg/L		1		E300.0	10/28/16 05:58 / jpv
Sulfate	ND	mg/L		1		E300.0	10/28/16 05:58 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	10/26/16 12:20 / cjm
CATIONS							
Calcium	ND	mg/L		1		E200.7	10/27/16 02:52 / jh
Magnesium	ND	mg/L		1		E200.7	10/27/16 02:52 / jh
Potassium	ND	mg/L		1		E200.7	10/27/16 02:52 / jh
Sodium	ND	mg/L		1		E200.7	10/27/16 02:52 / jh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/25/16 17:58 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/26/16 21:23 / jpv
Barium	ND	mg/L		0.01		E200.8	10/25/16 17:58 / jpv
Beryllium	ND	mg/L		0.001		E200.8	10/25/16 17:58 / jpv
Boron	ND	mg/L		0.05		E200.7	10/27/16 02:52 / jh
Cadmium	ND	mg/L		0.01		E200.8	10/25/16 17:58 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/26/16 21:23 / jpv
Cobalt	ND	mg/L		0.02		E200.8	10/25/16 17:58 / jpv
Lead	ND	mg/L		0.01		E200.8	10/25/16 17:58 / jpv
Lithium	ND	mg/L		0.01		E200.7	10/27/16 02:52 / jh
Mercury	ND	mg/L		0.001		E245.1	10/25/16 13:59 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/25/16 17:58 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/26/16 21:23 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/25/16 17:58 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.18	pCi/L	U			E903.0	11/07/16 12:59 / eli-ca
Radium 226 precision (±)	0.15	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 228	0.79	pCi/L	U			RA-05	11/02/16 09:13 / eli-ca
Radium 228 precision (±)	0.86	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	11/02/16 09:13 / eli-ca
Radium 226 + Radium 228	1	pCi/L	U			A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B16101734-007
Client Sample ID: SFL MW-5

Report Date: 11/10/16
Collection Date: 10/19/16 14:30
DateReceived: 10/21/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	4.9	s.u.	H	0.1		A4500-H B	10/23/16 17:22 / ldv
Solids, Total Dissolved TDS @ 180 C	7530	mg/L	D	100		A2540 C	10/24/16 11:39 / ks
INORGANICS							
Chloride	3070	mg/L	D	10		E300.0	10/28/16 06:12 / jpv
Sulfate	2100	mg/L	D	40		E300.0	10/28/16 06:12 / jpv
Fluoride	0.2	mg/L		0.1		A4500-F C	10/26/16 12:26 / cjm
CATIONS							
Calcium	903	mg/L		1		E200.7	10/27/16 02:56 / jh
Magnesium	177	mg/L		1		E200.7	10/27/16 02:56 / jh
Potassium	62	mg/L		1		E200.8	10/26/16 21:26 / jpv
Sodium	1720	mg/L	D	7		E200.7	10/27/16 02:56 / jh
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/25/16 18:00 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/26/16 21:26 / jpv
Barium	0.06	mg/L		0.01		E200.8	10/25/16 18:00 / jpv
Beryllium	0.010	mg/L		0.001		E200.8	10/25/16 18:00 / jpv
Boron	3.74	mg/L	D	0.07		E200.7	10/27/16 02:56 / jh
Cadmium	ND	mg/L		0.01		E200.8	10/25/16 18:00 / jpv
Chromium	ND	mg/L		0.01		E200.8	10/26/16 21:26 / jpv
Cobalt	0.05	mg/L		0.02		E200.8	10/25/16 18:00 / jpv
Lead	ND	mg/L		0.01		E200.8	10/25/16 18:00 / jpv
Lithium	0.90	mg/L	D	0.04		E200.7	10/27/16 02:56 / jh
Mercury	ND	mg/L		0.001		E245.1	10/25/16 14:00 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/25/16 18:00 / jpv
Selenium	ND	mg/L		0.01		E200.8	10/26/16 21:26 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/25/16 18:00 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	4.9	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 226 precision (±)	1.0	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 228	6.5	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 226 + Radium 228	11.5	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.9	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B16101734-008
Client Sample ID: SFL MW-6

Report Date: 11/10/16
Collection Date: 10/19/16 15:17
DateReceived: 10/21/16
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	4.2	s.u.	H	0.1		A4500-H B	10/23/16 17:25 / ldv
Solids, Total Dissolved TDS @ 180 C	8170	mg/L	D	100		A2540 C	10/24/16 11:39 / ks
INORGANICS							
Chloride	3500	mg/L	D	10		E300.0	10/28/16 06:26 / jpv
Sulfate	2170	mg/L	D	40		E300.0	10/28/16 06:26 / jpv
Fluoride	0.8	mg/L		0.1		A4500-F C	10/26/16 12:35 / cjm
CATIONS							
Calcium	983	mg/L		1		E200.7	10/27/16 03:00 / jh
Magnesium	263	mg/L		1		E200.7	10/27/16 03:00 / jh
Potassium	88	mg/L		1		E200.8	10/26/16 21:29 / jpv
Sodium	2070	mg/L		1		E200.8	10/26/16 21:29 / jpv
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	10/25/16 18:03 / jpv
Arsenic	ND	mg/L		0.01		E200.8	10/25/16 18:03 / jpv
Barium	0.06	mg/L		0.01		E200.8	10/25/16 18:03 / jpv
Beryllium	0.051	mg/L		0.001		E200.8	10/25/16 18:03 / jpv
Boron	0.41	mg/L	D	0.07		E200.7	10/27/16 03:00 / jh
Cadmium	0.01	mg/L		0.01		E200.8	10/25/16 18:03 / jpv
Chromium	0.01	mg/L		0.01		E200.8	10/26/16 21:29 / jpv
Cobalt	0.12	mg/L		0.02		E200.8	10/25/16 18:03 / jpv
Lead	ND	mg/L		0.01		E200.8	10/25/16 18:03 / jpv
Lithium	0.88	mg/L	D	0.04		E200.7	10/27/16 03:00 / jh
Mercury	ND	mg/L		0.001		E245.1	10/25/16 14:02 / mas
Molybdenum	ND	mg/L		0.05		E200.8	10/25/16 18:03 / jpv
Selenium	0.02	mg/L		0.01		E200.8	10/26/16 21:29 / jpv
Thallium	ND	mg/L		0.01		E200.8	10/25/16 18:03 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	4.5	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 226 precision (±)	0.95	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	11/07/16 12:59 / eli-ca
Radium 228	6.3	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	11/02/16 10:57 / eli-ca
Radium 226 + Radium 228	10.8	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 precision (±)	1.9	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	11/08/16 10:25 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Report Date: 11/08/16
Project: CCRR
Work Order: B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-8300
Lab ID: LCS-RA226-8300		Laboratory Control Sample				Run: G542M_161025A				11/07/16 11:20
Radium 226		11	pCi/L		107	80	120			
Lab ID: MB-RA226-8300	3	Method Blank				Run: G542M_161025A				11/07/16 11:20
Radium 226		0.07	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: B16101734-001CMS		Sample Matrix Spike				Run: G542M_161025A				11/07/16 11:20
Radium 226		20	pCi/L		94	70	130			
Lab ID: B16101734-001CMSD		Sample Matrix Spike Duplicate				Run: G542M_161025A				11/07/16 11:20
Radium 226		22	pCi/L		103	70	130	9.1	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Report Date: 11/08/16
Project: CCRR
Work Order: B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**										Batch: RA228-5349
Lab ID: **LCS-228-RA226-8300**		Laboratory Control Sample				Run: TENNELEC-3_161025A				11/02/16 09:13
Radium 228		7.3	pCi/L		85	80	120			
Lab ID: **MB-RA226-8300**	3	Method Blank				Run: TENNELEC-3_161025A				11/02/16 09:13
Radium 228		0.05	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: **B16101734-006CMS**		Sample Matrix Spike				Run: TENNELEC-3_161025A				11/02/16 09:13
Radium 228		15.1	pCi/L		82	70	130			
Lab ID: **B16101734-006CMSD**		Sample Matrix Spike Duplicate				Run: TENNELEC-3_161025A				11/02/16 09:13
Radium 228		16.0	pCi/L		87	70	130	5.9	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_161026A	
Lab ID: ICV	6	Continuing Calibration Verification Standard							10/26/16 15:28	
Boron		2.46	mg/L	0.10	98	95	105			
Calcium		25.0	mg/L	1.0	100	95	105			
Lithium		1.27	mg/L	0.10	101	95	105			
Magnesium		25.5	mg/L	1.0	102	95	105			
Potassium		25.4	mg/L	1.0	102	95	105			
Sodium		25.4	mg/L	1.0	102	95	105			
Method: E200.7									Batch: 103856	
Lab ID: MB-103856	6	Method Blank				Run: ICP203-B_161026A			10/27/16 00:27	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.03						
Lithium		0.005	mg/L	0.002						
Magnesium		ND	mg/L	0.004						
Potassium		ND	mg/L	0.08						
Sodium		ND	mg/L	0.02						
Lab ID: LCS-103856	6	Laboratory Control Sample				Run: ICP203-B_161026A			10/27/16 00:31	
Boron		0.507	mg/L	0.10	101	85	115			
Calcium		26.7	mg/L	1.0	107	85	115			
Lithium		0.532	mg/L	0.10	105	85	115			
Magnesium		26.6	mg/L	1.0	106	85	115			
Potassium		26.3	mg/L	1.0	105	85	115			
Sodium		26.6	mg/L	1.0	107	85	115			
Lab ID: B16101734-005BMS3	6	Sample Matrix Spike				Run: ICP203-B_161026A			10/27/16 02:06	
Boron		1.12	mg/L	0.050	91	70	130			
Calcium		819	mg/L	1.0		70	130			A
Lithium		1.03	mg/L	0.10	99	70	130			
Magnesium		147	mg/L	1.0		70	130			A
Potassium		81.1	mg/L	1.0	92	70	130			
Sodium		1090	mg/L	3.7		70	130			A
Lab ID: B16101734-005BMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_161026A			10/27/16 02:10	
Boron		1.23	mg/L	0.050	115	70	130	10	20	
Calcium		878	mg/L	1.0		70	130	6.9	20	A
Lithium		1.08	mg/L	0.10	110	70	130	4.8	20	
Magnesium		157	mg/L	1.0		70	130	6.5	20	A
Potassium		86.2	mg/L	1.0	112	70	130	6.1	20	
Sodium		1160	mg/L	3.7		70	130	6.5	20	A
Method: E200.7									Batch: 103857	
Lab ID: MB-103857	6	Method Blank				Run: ICP203-B_161026A			10/27/16 02:45	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.03						
Lithium		0.005	mg/L	0.002						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 103857
Lab ID: MB-103857	6	Method Blank				Run: ICP203-B_161026A				10/27/16 02:45
Magnesium		ND	mg/L	0.004						
Potassium		ND	mg/L	0.08						
Sodium		ND	mg/L	0.02						
Lab ID: LCS-103857	6	Laboratory Control Sample				Run: ICP203-B_161026A				10/27/16 02:49
Boron		0.479	mg/L	0.10	96	85	115			
Calcium		25.3	mg/L	1.0	101	85	115			
Lithium		0.509	mg/L	0.10	101	85	115			
Magnesium		25.2	mg/L	1.0	101	85	115			
Potassium		25.3	mg/L	1.0	101	85	115			
Sodium		25.1	mg/L	1.0	100	85	115			
Lab ID: B16101754-003CMS3	6	Sample Matrix Spike				Run: ICP203-B_161026A				10/27/16 03:28
Boron		0.571	mg/L	0.050	99	70	130			
Calcium		30.0	mg/L	1.0	102	70	130			
Lithium		0.524	mg/L	0.10	101	70	130			
Magnesium		26.7	mg/L	1.0	101	70	130			
Potassium		27.2	mg/L	1.0	101	70	130			
Sodium		309	mg/L	1.0		70	130			A
Lab ID: B16101754-003CMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_161026A				10/27/16 03:32
Boron		0.572	mg/L	0.050	99	70	130	0.2	20	
Calcium		29.7	mg/L	1.0	101	70	130	0.9	20	
Lithium		0.520	mg/L	0.10	100	70	130	0.7	20	
Magnesium		26.6	mg/L	1.0	100	70	130	0.7	20	
Potassium		27.0	mg/L	1.0	100	70	130	0.7	20	
Sodium		304	mg/L	1.0		70	130	1.7	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS202-B_161025A	
Lab ID: QCS	9	Initial Calibration Verification Standard							10/25/16 12:58	
Antimony		0.0506	mg/L	0.050	101	90	110			
Arsenic		0.0505	mg/L	0.0050	101	90	110			
Barium		0.0496	mg/L	0.10	99	90	110			
Beryllium		0.0245	mg/L	0.0010	98	90	110			
Cadmium		0.0255	mg/L	0.0010	102	90	110			
Cobalt		0.0503	mg/L	0.010	101	90	110			
Lead		0.0508	mg/L	0.010	102	90	110			
Molybdenum		0.0471	mg/L	0.0050	94	90	110			
Thallium		0.0490	mg/L	0.10	98	90	110			
Method: E200.8									Batch: 103856	
Lab ID: MB-103856	11	Method Blank				Run: ICPMS202-B_161025A			10/25/16 15:56	
Antimony		3E-05	mg/L	3E-05						
Arsenic		ND	mg/L	0.0001						
Barium		ND	mg/L	7E-05						
Beryllium		ND	mg/L	1E-05						
Cadmium		ND	mg/L	1E-05						
Chromium		ND	mg/L	8E-05						
Cobalt		ND	mg/L	2E-05						
Lead		ND	mg/L	4E-05						
Molybdenum		ND	mg/L	4E-05						
Selenium		ND	mg/L	0.0002						
Thallium		4E-05	mg/L	1E-05						
Lab ID: LCS-103856	11	Laboratory Control Sample				Run: ICPMS202-B_161025A			10/25/16 15:59	
Antimony		0.507	mg/L	0.0050	101	85	115			
Arsenic		0.504	mg/L	0.0010	101	85	115			
Barium		0.503	mg/L	0.010	101	85	115			
Beryllium		0.233	mg/L	0.0010	93	85	115			
Cadmium		0.258	mg/L	0.0010	103	85	115			
Chromium		0.445	mg/L	0.0010	89	85	115			
Cobalt		0.452	mg/L	0.0010	90	85	115			
Lead		0.491	mg/L	0.0010	98	85	115			
Molybdenum		0.497	mg/L	0.0050	99	85	115			
Selenium		0.502	mg/L	0.0050	100	85	115			
Thallium		0.477	mg/L	0.0010	95	85	115			
Lab ID: B16101734-005BMS3	11	Sample Matrix Spike				Run: ICPMS202-B_161025A			10/25/16 17:31	
Antimony		0.532	mg/L	0.0010	106	70	130			
Arsenic		0.508	mg/L	0.0010	101	70	130			
Barium		0.545	mg/L	0.050	103	70	130			
Beryllium		0.220	mg/L	0.0010	88	70	130			
Cadmium		0.238	mg/L	0.0010	95	70	130			
Chromium		0.458	mg/L	0.0050	91	70	130			
Cobalt		0.467	mg/L	0.0050	93	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 103856
Lab ID: B16101734-005BMS3	11	Sample Matrix Spike				Run: ICPMS202-B_161025A				10/25/16 17:31
Lead		0.512	mg/L	0.0010	102	70	130			
Molybdenum		0.493	mg/L	0.0010	99	70	130			
Selenium		0.481	mg/L	0.0010	95	70	130			
Thallium		0.495	mg/L	0.00050	99	70	130			
Lab ID: B16101734-005BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_161025A				10/25/16 17:33
Antimony		0.517	mg/L	0.0010	103	70	130	2.8	20	
Arsenic		0.505	mg/L	0.0010	101	70	130	0.5	20	
Barium		0.530	mg/L	0.050	100	70	130	3.0	20	
Beryllium		0.213	mg/L	0.0010	85	70	130	3.0	20	
Cadmium		0.235	mg/L	0.0010	94	70	130	1.4	20	
Chromium		0.453	mg/L	0.0050	90	70	130	1.2	20	
Cobalt		0.459	mg/L	0.0050	92	70	130	1.7	20	
Lead		0.506	mg/L	0.0010	101	70	130	1.0	20	
Molybdenum		0.491	mg/L	0.0010	98	70	130	0.4	20	
Selenium		0.478	mg/L	0.0010	95	70	130	0.6	20	
Thallium		0.476	mg/L	0.00050	95	70	130	3.9	20	
Method: E200.8										Batch: 103857
Lab ID: MB-103857	11	Method Blank				Run: ICPMS202-B_161025A				10/25/16 17:42
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	0.0001						
Barium		7E-05	mg/L	7E-05						
Beryllium		ND	mg/L	1E-05						
Cadmium		ND	mg/L	1E-05						
Chromium		ND	mg/L	8E-05						
Cobalt		ND	mg/L	2E-05						
Lead		5E-05	mg/L	4E-05						
Molybdenum		6E-05	mg/L	4E-05						
Selenium		0.0002	mg/L	0.0002						
Thallium		0.0001	mg/L	1E-05						
Lab ID: LCS-103857	11	Laboratory Control Sample				Run: ICPMS202-B_161025A				10/25/16 17:44
Antimony		0.519	mg/L	0.0050	104	85	115			
Arsenic		0.494	mg/L	0.0010	99	85	115			
Barium		0.509	mg/L	0.010	102	85	115			
Beryllium		0.228	mg/L	0.0010	91	85	115			
Cadmium		0.243	mg/L	0.0010	97	85	115			
Chromium		0.429	mg/L	0.0010	86	85	115			
Cobalt		0.445	mg/L	0.0010	89	85	115			
Lead		0.499	mg/L	0.0010	100	85	115			
Molybdenum		0.490	mg/L	0.0050	98	85	115			
Selenium		0.490	mg/L	0.0050	98	85	115			
Thallium		0.474	mg/L	0.0010	95	85	115			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 103857
Lab ID: B16101754-003CMS3	11	Sample Matrix Spike				Run: ICPMS202-B_161025A				10/25/16 18:14
Antimony		0.510	mg/L	0.0010	102	70	130			
Arsenic		0.494	mg/L	0.0010	99	70	130			
Barium		0.587	mg/L	0.050	101	70	130			
Beryllium		0.214	mg/L	0.0010	86	70	130			
Cadmium		0.233	mg/L	0.0010	93	70	130			
Chromium		0.461	mg/L	0.0050	92	70	130			
Cobalt		0.472	mg/L	0.0050	94	70	130			
Lead		0.499	mg/L	0.0010	100	70	130			
Molybdenum		0.480	mg/L	0.0010	96	70	130			
Selenium		0.462	mg/L	0.0010	93	70	130			
Thallium		0.481	mg/L	0.00050	96	70	130			
Lab ID: B16101754-003CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_161025A				10/25/16 18:16
Antimony		0.514	mg/L	0.0010	103	70	130	0.8	20	
Arsenic		0.488	mg/L	0.0010	98	70	130	1.2	20	
Barium		0.595	mg/L	0.050	103	70	130	1.3	20	
Beryllium		0.222	mg/L	0.0010	89	70	130	3.8	20	
Cadmium		0.238	mg/L	0.0010	95	70	130	2.2	20	
Chromium		0.451	mg/L	0.0050	90	70	130	2.1	20	
Cobalt		0.456	mg/L	0.0050	91	70	130	3.3	20	
Lead		0.499	mg/L	0.0010	100	70	130	0.1	20	
Molybdenum		0.505	mg/L	0.0010	101	70	130	5.1	20	
Selenium		0.461	mg/L	0.0010	92	70	130	0.3	20	
Thallium		0.486	mg/L	0.00050	97	70	130	1.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_161026A	
Lab ID: QCS	5	Initial Calibration Verification Standard							10/26/16 19:48	
Arsenic		0.0502	mg/L	0.0050	100	90	110			
Chromium		0.0507	mg/L	0.010	101	90	110			
Potassium		2.55	mg/L	0.50	102	90	110			
Selenium		0.0501	mg/L	0.0050	100	90	110			
Sodium		2.47	mg/L	0.50	99	90	110			
Method: E200.8									Batch: 103856	
Lab ID: MB-103856	12	Method Blank				Run: ICPMS206-B_161026A			10/26/16 20:01	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Barium		ND	mg/L	9E-05						
Beryllium		2E-05	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		3E-05	mg/L	3E-05						
Potassium		0.01	mg/L	0.009						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: LCS-103856	12	Laboratory Control Sample				Run: ICPMS206-B_161026A			10/26/16 20:06	
Antimony		0.530	mg/L	0.0050	106	85	115			
Arsenic		0.499	mg/L	0.0010	100	85	115			
Barium		0.535	mg/L	0.010	107	85	115			
Beryllium		0.262	mg/L	0.0010	105	85	115			
Cadmium		0.252	mg/L	0.0010	101	85	115			
Chromium		0.488	mg/L	0.0010	98	85	115			
Cobalt		0.513	mg/L	0.0010	103	85	115			
Lead		0.532	mg/L	0.0010	106	85	115			
Molybdenum		0.526	mg/L	0.0050	105	85	115			
Potassium		25.2	mg/L	1.0	101	85	115			
Selenium		0.481	mg/L	0.0050	96	85	115			
Thallium		0.521	mg/L	0.0010	104	85	115			
Lab ID: B16101734-005BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_161026A			10/26/16 20:58	
Antimony		0.522	mg/L	0.0010	104	70	130			
Arsenic		0.514	mg/L	0.0010	103	70	130			
Barium		0.537	mg/L	0.050	102	70	130			
Beryllium		0.245	mg/L	0.0010	98	70	130			
Cadmium		0.245	mg/L	0.0010	98	70	130			
Chromium		0.502	mg/L	0.0050	100	70	130			
Cobalt		0.518	mg/L	0.0050	104	70	130			
Lead		0.507	mg/L	0.0010	101	70	130			
Molybdenum		0.526	mg/L	0.0010	105	70	130			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 103856
Lab ID: B16101734-005BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_161026A				10/26/16 20:58
Potassium		82.9	mg/L	1.0	115	70	130			
Selenium		0.495	mg/L	0.0021	99	70	130			
Thallium		0.462	mg/L	0.00050	92	70	130			
Lab ID: B16101734-005BMSD	12	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161026A				10/26/16 21:08
Antimony		0.510	mg/L	0.0010	102	70	130	2.4	20	
Arsenic		0.504	mg/L	0.0010	101	70	130	1.9	20	
Barium		0.531	mg/L	0.050	101	70	130	1.1	20	
Beryllium		0.247	mg/L	0.0010	99	70	130	1.0	20	
Cadmium		0.239	mg/L	0.0010	95	70	130	2.4	20	
Chromium		0.493	mg/L	0.0050	99	70	130	1.6	20	
Cobalt		0.505	mg/L	0.0050	101	70	130	2.5	20	
Lead		0.505	mg/L	0.0010	101	70	130	0.4	20	
Molybdenum		0.518	mg/L	0.0010	104	70	130	1.5	20	
Potassium		82.3	mg/L	1.0	113	70	130	0.7	20	
Selenium		0.475	mg/L	0.0021	95	70	130	4.0	20	
Thallium		0.459	mg/L	0.00050	92	70	130	0.6	20	
Method: E200.8										Batch: 103857
Lab ID: MB-103857	13	Method Blank				Run: ICPMS206-B_161026A				10/26/16 21:16
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Barium		ND	mg/L	9E-05						
Beryllium		1E-05	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						
Potassium		0.05	mg/L	0.009						
Selenium		ND	mg/L	0.0004						
Sodium		0.04	mg/L	0.005						
Thallium		0.0001	mg/L	1.0E-05						
Lab ID: LCS-103857	13	Laboratory Control Sample				Run: ICPMS206-B_161026A				10/26/16 21:18
Antimony		0.524	mg/L	0.0050	105	85	115			
Arsenic		0.500	mg/L	0.0010	100	85	115			
Barium		0.513	mg/L	0.010	103	85	115			
Beryllium		0.249	mg/L	0.0010	99	85	115			
Cadmium		0.245	mg/L	0.0010	98	85	115			
Chromium		0.493	mg/L	0.0010	99	85	115			
Cobalt		0.511	mg/L	0.0010	102	85	115			
Lead		0.511	mg/L	0.0010	102	85	115			
Molybdenum		0.531	mg/L	0.0050	106	85	115			
Potassium		26.7	mg/L	1.0	107	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 103857
Lab ID: LCS-103857	13	Laboratory Control Sample				Run: ICPMS206-B_161026A				10/26/16 21:18
Selenium		0.487	mg/L	0.0050	97	85	115			
Sodium		25.2	mg/L	1.0	101	85	115			
Thallium		0.498	mg/L	0.0010	100	85	115			
Lab ID: B16101754-003CMS3	13	Sample Matrix Spike				Run: ICPMS206-B_161026A				10/26/16 21:41
Antimony		0.531	mg/L	0.0010	106	70	130			
Arsenic		0.507	mg/L	0.0010	101	70	130			
Barium		0.608	mg/L	0.050	106	70	130			
Beryllium		0.265	mg/L	0.0010	106	70	130			
Cadmium		0.248	mg/L	0.0010	99	70	130			
Chromium		0.487	mg/L	0.0050	97	70	130			
Cobalt		0.550	mg/L	0.0050	110	70	130			
Lead		0.523	mg/L	0.0010	105	70	130			
Molybdenum		0.548	mg/L	0.0010	110	70	130			
Potassium		28.9	mg/L	1.0	108	70	130			
Selenium		0.484	mg/L	0.0010	97	70	130			
Sodium		298	mg/L	1.0		70	130			A
Thallium		0.509	mg/L	0.00050	102	70	130			
Lab ID: B16101754-003CMSD	13	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161026A				10/26/16 21:44
Antimony		0.524	mg/L	0.0010	105	70	130	1.4	20	
Arsenic		0.511	mg/L	0.0010	102	70	130	0.9	20	
Barium		0.591	mg/L	0.050	103	70	130	2.7	20	
Beryllium		0.252	mg/L	0.0010	101	70	130	4.8	20	
Cadmium		0.244	mg/L	0.0010	98	70	130	1.5	20	
Chromium		0.486	mg/L	0.0050	97	70	130	0.2	20	
Cobalt		0.526	mg/L	0.0050	105	70	130	4.6	20	
Lead		0.503	mg/L	0.0010	101	70	130	4.0	20	
Molybdenum		0.543	mg/L	0.0010	109	70	130	0.9	20	
Potassium		28.8	mg/L	1.0	107	70	130	0.3	20	
Selenium		0.480	mg/L	0.0010	96	70	130	0.9	20	
Sodium		297	mg/L	1.0		70	130	0.4	20	A
Thallium		0.493	mg/L	0.00050	99	70	130	3.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_161025A	
Lab ID: **ICV**		Initial Calibration Verification Standard							10/25/16 13:24	
Mercury		0.00202	mg/L	0.00010	101	90	110			
Method: **E245.1**									Batch: 103884	
Lab ID: **MB-103884**		Method Blank				Run: HGCV202-B_161025A			10/25/16 13:42	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-103884**		Laboratory Control Sample				Run: HGCV202-B_161025A			10/25/16 13:43	
Mercury		0.00191	mg/L	0.00010	95	85	115			
Lab ID: **B16101734-001BMS**		Sample Matrix Spike				Run: HGCV202-B_161025A			10/25/16 13:47	
Mercury		0.00192	mg/L	0.00010	96	70	130			
Lab ID: **B16101734-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161025A			10/25/16 13:49	
Mercury		0.00192	mg/L	0.00010	96	70	130	0.0	30	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 11/10/16
Project: CCRR
Work Order: B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 103888
Lab ID: MB-103888		Method Blank				Run: BAL #SD-15_161024A				10/24/16 11:36
Solids, Total Dissolved TDS @ 180 C		5	mg/L	5						
Lab ID: LCS-103888		Laboratory Control Sample				Run: BAL #SD-15_161024A				10/24/16 11:37
Solids, Total Dissolved TDS @ 180 C		983	mg/L	10	99	90	110			
Lab ID: B16101734-001A DUP		Sample Duplicate				Run: BAL #SD-15_161024A				10/24/16 11:38
Solids, Total Dissolved TDS @ 180 C		5620	mg/L	98				3.9	5	
Method: A2540 C										Batch: 104090
Lab ID: MB-104090		Method Blank				Run: BAL #SD-15_161031C				10/31/16 11:41
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: LCS-104090		Laboratory Control Sample				Run: BAL #SD-15_161031C				10/31/16 11:41
Solids, Total Dissolved TDS @ 180 C		972	mg/L	10	97	90	110			
Lab ID: B16101733-066A DUP		Sample Duplicate				Run: BAL #SD-15_161031C				10/31/16 11:41
Solids, Total Dissolved TDS @ 180 C		4090	mg/L	28				1.6	5	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_161026A	
Lab ID: **ICV**		Initial Calibration Verification Standard							10/26/16 09:49	
Fluoride		0.990	mg/L	0.10	99	90	110			
Method: **A4500-F C**									Batch: R269344	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_161026A			10/26/16 09:44	
Fluoride		ND	mg/L	0.03						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_161026A			10/26/16 09:46	
Fluoride		1.00	mg/L	0.10	100	90	110			
Lab ID: **B16101692-003AMS**		Sample Matrix Spike				Run: MAN-TECH_161026A			10/26/16 14:04	
Fluoride		1.09	mg/L	0.10	86	80	120			
Lab ID: **B16101692-003AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_161026A			10/26/16 14:10	
Fluoride		1.12	mg/L	0.10	89	80	120	2.7	10	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_161023A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								10/23/16 13:03	
pH		7.96	s.u.	0.10	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								10/23/16 16:56	
pH		7.01	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R269135	
Lab ID: **B16101734-002ADUP**	Sample Duplicate					Run: PHSC _101-B_161023A			10/23/16 14:56	
pH		3.82	s.u.	0.10				0.0	3	
Lab ID: **B16101734-001ADUP**	Sample Duplicate					Run: PHSC _101-B_161023A			10/23/16 17:09	
pH		6.48	s.u.	0.10				0.0	3	
Method: **A4500-H B**									Analytical Run: PHSC _101-B_161024A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								10/24/16 08:43	
pH		7.97	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R269148	
Lab ID: **B16101818-005ADUP**	Sample Duplicate					Run: PHSC _101-B_161024A			10/24/16 16:06	
pH		6.38	s.u.	0.10				0.8	3	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 11/10/16

Project: CCRR **Work Order:** B16101734

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 1_161027A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							10/27/16 11:46	
Chloride			2.23	mg/L	1.0	99	90	110			
Sulfate			8.91	mg/L	1.0	99	90	110			
Method:	**E300.0**									Batch: R269432	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 1_161027A			10/27/16 12:00	
Chloride			ND	mg/L	0.008						
Sulfate			ND	mg/L	0.06						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_161027A			10/27/16 12:14	
Chloride			10.3	mg/L	1.0	103	90	110			
Sulfate			30.7	mg/L	1.0	102	90	110			
Lab ID:	**B16101733-065AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_161027A			10/28/16 02:13	
Chloride			10.9	mg/L	1.0	109	90	110			
Sulfate			32.2	mg/L	1.0	107	90	110			
Lab ID:	**B16101733-065AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_161027A			10/28/16 02:27	
Chloride			11.0	mg/L	1.0	110	90	110	0.7	20	
Sulfate			32.5	mg/L	1.0	108	90	110	0.7	20	
Lab ID:	**B16101734-005AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_161027A			10/28/16 05:30	
Chloride			2670	mg/L	6.1	94	90	110			
Sulfate			5180	mg/L	18	100	90	110			
Lab ID:	**B16101734-005AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_161027A			10/28/16 05:44	
Chloride			2730	mg/L	6.1	99	90	110	2.1	20	
Sulfate			5260	mg/L	18	103	90	110	1.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency

B16101734

Login completed by: Cindy Rohrer
Date Received: 10/21/2016

Reviewed by: BL2000\tedwards
Received by: shc

Reviewed Date: 10/24/2016
Carrier name: Return-UPS NDA N/C

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	8.3°C No Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Per phone call between Greg Seifert with Amec Foster Wheeler and Amanda Myatt, Energy Laboratory College Station Asst Lab Manager on 10/25/16, cancel analysis of Calcium, Magnesium, Potassium and Sodium on all samples.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Amec Foster Wheeler	Project Name, PWS, Permit, Etc.: TMPA	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 3755 S. Capital of TX Hwy. #375 Austin, TX 78704	Contact Name: Morriss Barney / Greg Seifert Phone/Fax: 512-241-2310	Email: greg.seifert@amecfw.com	Sampler: (Please Print) BG/SM
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Schedule 1 & 2

SEE ATTACHED

Standard Turnaround (TAT) — RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: T=1.2/1.4

Shipped by:

Cooler ID(s):

Receipt Temp _____ °C

On Ice: (Y) N

Custody Seal On Bottle Y (N) / On Cooler Y

Intact Y N

Signature Match Y N

BG

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX		LABORATORY USE ONLY
1	~~AR MW-3~~	~~10/19/16~~	~~0815~~	~~W~~	X	
2	SFL MW-4	10/19/16	0913	W	X	1610734-001
3	SFL MW-3		1037		X	002
4	SFL MW-1		1126		X	003
5	SFL MW-2		1350		X	004
6	DUP-2		—		X	005
7	EQBK-101916		1300		X	006
8	SFL MW-5		1430		X	007
9	SFL MW-6		1517		X	008
10						

Custody Record MUST be Signed

Relinquished by (print): Samuel C. Macon Date/Time: 10-19-16 16:47 Signature: Samuel C. Macon

Relinquished by (print): Date/Time: Signature:

Received by (print): Tiwanda Reed Date/Time: 10/19/16 1647 Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Date/Time: 10/21/16 0915

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

January 12, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B16121644 Quote ID: B3997 - CCRR

Project Name: TMPA-6706-15-0060

Energy Laboratories Inc Billings MT received the following 21 samples for Texas Municipal Power Agency on 12/22/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B16121644-001	EQBK MPS-122016	12/20/16 17:50	12/22/16	Aqueous	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B16121644-002	EQBK 12-21-16/SCM	12/21/16 13:37	12/22/16	Aqueous	Same As Above
B16121644-003	SSP/AP MW-1	12/20/16 14:17	12/22/16	Aqueous	Same As Above
B16121644-004	AP-MW1D	12/21/16 12:16	12/22/16	Aqueous	Same As Above
B16121644-005	SSP-MW2	12/20/16 16:10	12/22/16	Aqueous	Same As Above
B16121644-006	SSP-MW3	12/20/16 17:20	12/22/16	Aqueous	Same As Above
B16121644-007	AP-MW4	12/21/16 10:42	12/22/16	Aqueous	Same As Above
B16121644-008	SFL-MW6	12/21/16 12:32	12/22/16	Aqueous	Same As Above
B16121644-009	AP-MW-3	12/21/16 9:16	12/23/16	Aqueous	Same As Above

.

ANALYTICAL SUMMARY REPORT

B16121644-011	EQBK-MPS-122116	12/21/16 13:15	12/23/16	Aqueous	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B16121644-012	DUP 2	12/21/16 0:00	12/23/16	Aqueous	Same As Above
B16121644-013	SSP-MW4	12/20/16 16:52	12/23/16	Aqueous	Same As Above
B16121644-014	EQBK-12-20-16/SCM	12/20/16 18:00	12/23/16	Aqueous	Same As Above
B16121644-015	AP-MW5	12/21/16 9:06	12/23/16	Aqueous	Same As Above
B16121644-016	DUP-1	12/21/16 0:00	12/23/16	Aqueous	Same As Above
B16121644-017	SFL-MW5	12/21/16 15:39	12/23/16	Aqueous	Same As Above
B16121644-018	SFL-MW2	12/22/16 9:45	12/23/16	Aqueous	Same As Above
B16121644-019	SFL-MW3	12/22/16 11:35	12/23/16	Aqueous	Same As Above
B16121644-020	SFL-MW4	12/22/16 12:40	12/23/16	Aqueous	Same As Above
B16121644-021	EQBK 12-22-16/SCM	12/22/16 10:10	12/23/16	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Work Order: B16121644

Report Date: 01/12/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-001
Client Sample ID: EQBK MPS-122016

Report Date: 01/12/17
Collection Date: 12/20/16 17:50
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	12/27/16 13:36 / jh
Magnesium	ND	mg/L		1		E200.7	12/27/16 13:36 / jh
Potassium	ND	mg/L		1		E200.7	12/27/16 13:36 / jh
Sodium	ND	mg/L		1		E200.7	12/27/16 13:36 / jh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	12/22/16 16:06 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	ND	mg/L		1		E300.0	12/23/16 13:13 / jpv
Sulfate	ND	mg/L		1		E300.0	12/23/16 13:13 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/27/16 16:15 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 15:09 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/23/16 15:32 / rlh
Barium	ND	mg/L		0.01		E200.8	12/23/16 15:32 / rlh
Beryllium	ND	mg/L		0.001		E200.8	12/23/16 15:32 / rlh
Boron	ND	mg/L		0.05		E200.7	12/27/16 13:36 / jh
Cadmium	ND	mg/L		0.01		E200.8	12/23/16 15:32 / rlh
Chromium	ND	mg/L		0.01		E200.8	12/23/16 15:32 / rlh
Cobalt	ND	mg/L		0.02		E200.8	12/23/16 15:32 / rlh
Lead	ND	mg/L		0.01		E200.8	12/23/16 15:32 / rlh
Lithium	ND	mg/L		0.01		E200.7	12/27/16 13:36 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:36 / ser
Molybdenum	ND	mg/L		0.05		E200.8	12/28/16 15:09 / jpv
Selenium	ND	mg/L		0.01		E200.8	12/23/16 15:32 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 15:32 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	0.15	pCi/L	U			E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.25	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	0.63	pCi/L	U			RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.5	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.5	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-002
Client Sample ID: EQBK 12-21-16/SCM

Report Date: 01/12/17
Collection Date: 12/21/16 13:37
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	1	mg/L		1		E200.7	12/28/16 12:17 / jh
Magnesium	ND	mg/L		1		E200.7	12/28/16 12:17 / jh
Potassium	ND	mg/L		1		E200.7	12/28/16 12:17 / jh
Sodium	ND	mg/L		1		E200.7	12/28/16 12:17 / jh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	12/22/16 16:11 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	ND	mg/L		1		E300.0	12/23/16 13:55 / jpv
Sulfate	ND	mg/L		1		E300.0	12/23/16 13:55 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/27/16 16:21 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	12/28/16 12:17 / jh
Arsenic	ND	mg/L		0.01		E200.8	12/23/16 15:36 / rlh
Barium	ND	mg/L		0.01		E200.8	12/23/16 15:36 / rlh
Beryllium	ND	mg/L		0.001		E200.8	12/23/16 15:36 / rlh
Boron	ND	mg/L		0.05		E200.7	12/28/16 12:17 / jh
Cadmium	ND	mg/L		0.01		E200.8	12/23/16 15:36 / rlh
Chromium	ND	mg/L		0.01		E200.8	12/23/16 15:36 / rlh
Cobalt	ND	mg/L		0.02		E200.8	12/23/16 15:36 / rlh
Lead	ND	mg/L		0.01		E200.8	12/23/16 15:36 / rlh
Lithium	ND	mg/L		0.01		E200.7	12/28/16 12:17 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:37 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 12:17 / jh
Selenium	ND	mg/L		0.01		E200.8	12/23/16 15:36 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 15:36 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	0.08	pCi/L	U			E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.15	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.23	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	-0.3	pCi/L	U			RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	-0.2	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.2	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-003
Client Sample ID: SSP/AP MW-1

Report Date: 01/12/17
Collection Date: 12/20/16 14:17
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	685	mg/L		1		E200.7	12/27/16 13:40 / jh
Magnesium	149	mg/L		1		E200.7	12/27/16 13:40 / jh
Potassium	55	mg/L		1		E200.7	12/27/16 13:40 / jh
Sodium	1290	mg/L	D	4		E200.7	12/27/16 13:40 / jh
PHYSICAL PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	12/22/16 16:14 / pjw
Solids, Total Dissolved TDS @ 180 C	6470	mg/L	D	100		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	1500	mg/L	D	6		E300.0	12/23/16 14:37 / jpv
Sulfate	2760	mg/L	D	20		E300.0	12/23/16 14:37 / jpv
Fluoride	0.2	mg/L		0.1		A4500-F C	12/27/16 16:24 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	12/28/16 12:21 / jh
Arsenic	0.01	mg/L		0.01		E200.8	12/23/16 15:39 / rlh
Barium	0.07	mg/L		0.01		E200.8	12/23/16 15:39 / rlh
Beryllium	0.002	mg/L		0.001		E200.8	12/23/16 15:39 / rlh
Boron	0.83	mg/L		0.05		E200.7	12/27/16 13:40 / jh
Cadmium	ND	mg/L		0.01		E200.8	12/23/16 15:39 / rlh
Chromium	ND	mg/L		0.01		E200.8	12/23/16 15:39 / rlh
Cobalt	ND	mg/L		0.02		E200.8	12/23/16 15:39 / rlh
Lead	ND	mg/L		0.01		E200.8	12/23/16 15:39 / rlh
Lithium	1.28	mg/L	D	0.02		E200.7	12/27/16 13:40 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:39 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 12:21 / jh
Selenium	ND	mg/L		0.01		E200.8	12/23/16 15:39 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 15:39 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	0.91	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.23	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	-1	pCi/L	U			RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	-0.06	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.1	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-004
Client Sample ID: AP-MW1D

Report Date: 01/12/17
Collection Date: 12/21/16 12:16
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	77	mg/L		1		E200.7	12/28/16 12:47 / jh
Magnesium	13	mg/L		1		E200.7	12/28/16 12:47 / jh
Potassium	11	mg/L		1		E200.7	12/28/16 12:47 / jh
Sodium	321	mg/L	D	2		E200.7	12/28/16 12:47 / jh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	12/22/16 16:16 / pjw
Solids, Total Dissolved TDS @ 180 C	1360	mg/L	D	20		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	229	mg/L		1		E300.0	12/23/16 14:51 / jpv
Sulfate	546	mg/L	D	4		E300.0	12/23/16 14:51 / jpv
Fluoride	0.6	mg/L		0.1		A4500-F C	12/27/16 16:27 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 15:29 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/23/16 15:42 / rlh
Barium	0.01	mg/L		0.01		E200.8	12/23/16 15:42 / rlh
Beryllium	ND	mg/L		0.001		E200.8	12/23/16 15:42 / rlh
Boron	4.80	mg/L		0.05		E200.7	12/28/16 12:47 / jh
Cadmium	ND	mg/L		0.01		E200.8	12/23/16 15:42 / rlh
Chromium	ND	mg/L		0.01		E200.8	12/23/16 15:42 / rlh
Cobalt	ND	mg/L		0.02		E200.8	12/23/16 15:42 / rlh
Lead	ND	mg/L		0.01		E200.8	12/23/16 15:42 / rlh
Lithium	0.08	mg/L		0.01		E200.7	12/28/16 12:47 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:41 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 12:47 / jh
Selenium	ND	mg/L		0.01		E200.8	12/23/16 15:42 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 15:42 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	0.32	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	2.2	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	2.5	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.1	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-005
Client Sample ID: SSP-MW2

Report Date: 01/12/17
Collection Date: 12/20/16 16:10
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	925	mg/L		1		E200.7	12/27/16 13:43 / jh
Magnesium	219	mg/L		1		E200.7	12/27/16 13:43 / jh
Potassium	66	mg/L		1		E200.7	12/27/16 13:43 / jh
Sodium	1270	mg/L	D	4		E200.7	12/27/16 13:43 / jh
PHYSICAL PROPERTIES							
pH	5.5	s.u.	H	0.1		A4500-H B	12/22/16 16:19 / pjw
Solids, Total Dissolved TDS @ 180 C	6990	mg/L	D	100		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	2550	mg/L	D	6		E300.0	12/23/16 15:05 / jpv
Sulfate	1970	mg/L	D	20		E300.0	12/23/16 15:05 / jpv
Fluoride	0.2	mg/L		0.1		A4500-F C	12/27/16 16:43 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 15:32 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	12/23/16 15:46 / rlh
Barium	0.14	mg/L		0.01		E200.8	12/23/16 15:46 / rlh
Beryllium	0.025	mg/L		0.001		E200.8	12/23/16 15:46 / rlh
Boron	0.53	mg/L		0.05		E200.7	12/27/16 13:43 / jh
Cadmium	ND	mg/L		0.01		E200.8	12/23/16 15:46 / rlh
Chromium	ND	mg/L		0.01		E200.8	12/23/16 15:46 / rlh
Cobalt	0.07	mg/L		0.02		E200.8	12/23/16 15:46 / rlh
Lead	ND	mg/L		0.01		E200.8	12/23/16 15:46 / rlh
Lithium	1.03	mg/L	D	0.02		E200.7	12/27/16 13:43 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:42 / ser
Molybdenum	ND	mg/L		0.05		E200.8	12/28/16 15:32 / jpv
Selenium	ND	mg/L		0.01		E200.8	12/23/16 15:46 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 15:46 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	0.71	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.21	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	0.98	pCi/L	U			RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	1.7	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.0	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-006
Client Sample ID: SSP-MW3

Report Date: 01/12/17
Collection Date: 12/20/16 17:20
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	703	mg/L		1		E200.7	12/28/16 12:51 / jh
Magnesium	178	mg/L		1		E200.7	12/28/16 12:51 / jh
Potassium	51	mg/L		1		E200.7	12/28/16 12:51 / jh
Sodium	1100	mg/L	D	4		E200.7	12/28/16 12:51 / jh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	12/22/16 16:22 / pjw
Solids, Total Dissolved TDS @ 180 C	5780	mg/L	D	100		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	1700	mg/L	D	6		E300.0	12/23/16 15:19 / jpv
Sulfate	2480	mg/L	D	20		E300.0	12/23/16 15:19 / jpv
Fluoride	0.8	mg/L		0.1		A4500-F C	12/27/16 16:50 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 15:35 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	12/23/16 15:49 / rlh
Barium	0.09	mg/L		0.01		E200.8	12/23/16 15:49 / rlh
Beryllium	0.121	mg/L		0.001		E200.8	12/23/16 15:49 / rlh
Boron	2.86	mg/L		0.05		E200.7	12/28/16 12:51 / jh
Cadmium	0.06	mg/L		0.01		E200.8	12/23/16 15:49 / rlh
Chromium	0.01	mg/L		0.01		E200.8	12/23/16 15:49 / rlh
Cobalt	0.59	mg/L		0.02		E200.8	12/23/16 15:49 / rlh
Lead	0.03	mg/L		0.01		E200.8	12/23/16 15:49 / rlh
Lithium	0.73	mg/L	D	0.02		E200.7	12/28/16 12:51 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:44 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 12:51 / jh
Selenium	ND	mg/L		0.01		E200.8	12/23/16 15:49 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 15:49 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	9.3	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	1.8	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	28	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	5.3	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	37.0	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	5.6	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-007
Client Sample ID: AP-MW4

Report Date: 01/12/17
Collection Date: 12/21/16 10:42
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	551	mg/L		1		E200.7	12/27/16 13:47 / jh
Magnesium	129	mg/L		1		E200.7	12/27/16 13:47 / jh
Potassium	51	mg/L		1		E200.7	12/27/16 13:47 / jh
Sodium	574	mg/L	D	2		E200.7	12/27/16 13:47 / jh
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	12/22/16 16:24 / pjw
Solids, Total Dissolved TDS @ 180 C	4120	mg/L	D	40		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	507	mg/L	D	3		E300.0	12/23/16 15:33 / jpv
Sulfate	2250	mg/L	D	9		E300.0	12/23/16 15:33 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/27/16 16:57 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 15:39 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/23/16 16:02 / rlh
Barium	0.02	mg/L		0.01		E200.8	12/23/16 16:02 / rlh
Beryllium	ND	mg/L		0.001		E200.8	12/23/16 16:02 / rlh
Boron	2.11	mg/L		0.05		E200.7	12/27/16 13:47 / jh
Cadmium	ND	mg/L		0.01		E200.8	12/23/16 16:02 / rlh
Chromium	ND	mg/L		0.01		E200.8	12/23/16 16:02 / rlh
Cobalt	ND	mg/L		0.02		E200.8	12/23/16 16:02 / rlh
Lead	ND	mg/L		0.01		E200.8	12/23/16 16:02 / rlh
Lithium	1.03	mg/L		0.01		E200.7	12/27/16 13:47 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:49 / ser
Molybdenum	ND	mg/L		0.05		E200.8	12/28/16 15:39 / jpv
Selenium	ND	mg/L		0.01		E200.8	12/23/16 16:02 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 16:02 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	0.68	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	2.4	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	3.0	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.6	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.0	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-008
Client Sample ID: SFL-MW6

Report Date: 01/12/17
Collection Date: 12/21/16 12:32
DateReceived: 12/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	977	mg/L		1		E200.7	12/28/16 12:54 / jh
Magnesium	254	mg/L		1		E200.7	12/28/16 12:54 / jh
Potassium	75	mg/L	D	2		E200.7	12/28/16 12:54 / jh
Sodium	1780	mg/L	D	7		E200.7	12/28/16 12:54 / jh
PHYSICAL PROPERTIES							
pH	4.1	s.u.	H	0.1		A4500-H B	12/22/16 16:27 / pjw
Solids, Total Dissolved TDS @ 180 C	8640	mg/L	D	100		A2540 C	12/22/16 16:14 / jef
INORGANICS							
Chloride	3580	mg/L	D	10		E300.0	12/23/16 15:47 / jpv
Sulfate	2120	mg/L	D	40		E300.0	12/23/16 15:47 / jpv
Fluoride	0.8	mg/L		0.1		A4500-F C	12/27/16 17:14 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 15:42 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/23/16 16:05 / rlh
Barium	0.05	mg/L		0.01		E200.8	12/23/16 16:05 / rlh
Beryllium	0.047	mg/L		0.001		E200.8	12/23/16 16:05 / rlh
Boron	0.40	mg/L	D	0.07		E200.7	12/28/16 12:54 / jh
Cadmium	0.01	mg/L		0.01		E200.8	12/23/16 16:05 / rlh
Chromium	ND	mg/L		0.01		E200.8	12/23/16 16:05 / rlh
Cobalt	0.12	mg/L		0.02		E200.8	12/23/16 16:05 / rlh
Lead	ND	mg/L		0.01		E200.8	12/23/16 16:05 / rlh
Lithium	0.93	mg/L	D	0.04		E200.7	12/28/16 12:54 / jh
Mercury	ND	mg/L		0.001		E245.1	12/23/16 12:51 / ser
Molybdenum	ND	mg/L		0.05		E200.8	12/28/16 15:42 / jpv
Selenium	ND	mg/L		0.01		E200.8	12/23/16 16:05 / rlh
Thallium	ND	mg/L		0.01		E200.8	12/23/16 16:05 / rlh
RADIONUCLIDES - TOTAL							
Radium 226	3.6	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.78	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	11	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	2.7	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	14.3	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	2.8	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.1	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-009
Client Sample ID: AP-MW-3

Report Date: 01/12/17
Collection Date: 12/21/16 09:16
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	137	mg/L		1		E200.7	12/28/16 13:05 / jh
Magnesium	21	mg/L		1		E200.7	12/28/16 13:05 / jh
Potassium	12	mg/L		1		E200.7	12/28/16 13:05 / jh
Sodium	243	mg/L		1		E200.7	12/28/16 13:05 / jh
PHYSICAL PROPERTIES							
pH	5.5	s.u.	H	0.1		A4500-H B	12/23/16 11:38 / pjw
Solids, Total Dissolved TDS @ 180 C	1400	mg/L	D	20		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	141	mg/L		1		E300.0	12/27/16 18:03 / jpv
Sulfate	729	mg/L	D	4		E300.0	12/27/16 18:03 / jpv
Fluoride	0.1	mg/L		0.1		A4500-F C	12/27/16 17:17 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	12/28/16 13:05 / jh
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 16:15 / jpv
Barium	0.03	mg/L		0.01		E200.7	12/28/16 13:05 / jh
Beryllium	0.003	mg/L		0.001		E200.8	12/29/16 16:25 / jpv
Boron	3.88	mg/L		0.05		E200.7	12/28/16 13:05 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 13:05 / jh
Chromium	ND	mg/L		0.01		E200.7	12/28/16 13:05 / jh
Cobalt	0.05	mg/L		0.02		E200.8	12/28/16 16:15 / jpv
Lead	ND	mg/L		0.01		E200.8	12/28/16 16:15 / jpv
Lithium	0.07	mg/L		0.01		E200.7	12/28/16 13:05 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 16:47 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 13:05 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 16:15 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 16:15 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.77	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.22	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	2.1	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	2.9	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.1	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-011
Client Sample ID: EQBK-MPS-122116

Report Date: 01/12/17
Collection Date: 12/21/16 13:15
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	12/28/16 13:57 / jh
Magnesium	ND	mg/L		1		E200.7	12/28/16 13:57 / jh
Potassium	ND	mg/L		1		E200.7	12/28/16 13:57 / jh
Sodium	ND	mg/L		1		E200.7	12/28/16 13:57 / jh
PHYSICAL PROPERTIES							
pH	5.5	s.u.	H	0.1		A4500-H B	12/23/16 11:46 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	ND	mg/L		1		E300.0	12/27/16 18:32 / jpv
Sulfate	ND	mg/L		1		E300.0	12/27/16 18:32 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/27/16 17:38 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	12/28/16 13:57 / jh
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 16:38 / jpv
Barium	ND	mg/L		0.01		E200.7	12/28/16 13:57 / jh
Beryllium	ND	mg/L		0.001		E200.7	12/28/16 13:57 / jh
Boron	ND	mg/L		0.05		E200.7	12/28/16 13:57 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 13:57 / jh
Chromium	ND	mg/L		0.01		E200.7	12/28/16 13:57 / jh
Cobalt	ND	mg/L		0.02		E200.7	12/28/16 13:57 / jh
Lead	ND	mg/L		0.01		E200.8	12/28/16 16:38 / jpv
Lithium	ND	mg/L		0.01		E200.7	12/28/16 13:57 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 16:51 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 13:57 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 16:38 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 16:38 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.17	pCi/L	U			E903.0	01/11/17 14:24 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 226 MDC	0.27	pCi/L				E903.0	01/11/17 14:24 / eli-ca
Radium 228	0.51	pCi/L	U			RA-05	01/06/17 11:15 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 228 MDC	2.7	pCi/L				RA-05	01/06/17 11:15 / eli-ca
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.6	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.7	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-012
Client Sample ID: DUP 2

Report Date: 01/12/17
Collection Date: 12/21/16
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	133	mg/L		1		E200.7	12/28/16 14:01 / jh
Magnesium	20	mg/L		1		E200.7	12/28/16 14:01 / jh
Potassium	11	mg/L		1		E200.7	12/28/16 14:01 / jh
Sodium	228	mg/L		1		E200.7	12/28/16 14:01 / jh
PHYSICAL PROPERTIES							
pH	5.5	s.u.	H	0.1		A4500-H B	12/23/16 11:48 / pjw
Solids, Total Dissolved TDS @ 180 C	1390	mg/L	D	20		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	141	mg/L		1		E300.0	12/27/16 18:46 / jpv
Sulfate	716	mg/L	D	4		E300.0	12/27/16 18:46 / jpv
Fluoride	0.1	mg/L		0.1		A4500-F C	12/27/16 17:42 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	12/28/16 14:01 / jh
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 16:52 / jpv
Barium	0.02	mg/L		0.01		E200.7	12/28/16 14:01 / jh
Beryllium	0.003	mg/L		0.001		E200.8	12/29/16 16:31 / jpv
Boron	3.53	mg/L		0.05		E200.7	12/28/16 14:01 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:01 / jh
Chromium	ND	mg/L		0.01		E200.7	12/28/16 14:01 / jh
Cobalt	0.05	mg/L		0.02		E200.8	12/28/16 16:52 / jpv
Lead	ND	mg/L		0.01		E200.8	12/28/16 16:52 / jpv
Lithium	0.07	mg/L		0.01		E200.7	12/28/16 14:01 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 16:53 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:01 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 16:52 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 16:52 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.91	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.23	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	0.44	pCi/L	U			RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.6	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	1.4	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.6	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.6	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-013
Client Sample ID: SSP-MW4

Report Date: 01/12/17
Collection Date: 12/20/16 16:52
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	413	mg/L		1		E200.7	12/28/16 14:04 / jh
Magnesium	84	mg/L		1		E200.7	12/28/16 14:04 / jh
Potassium	56	mg/L		1		E200.7	12/28/16 14:04 / jh
Sodium	741	mg/L	D	4		E200.7	12/28/16 14:04 / jh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	12/23/16 11:51 / pjw
Solids, Total Dissolved TDS @ 180 C	3850	mg/L	D	40		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	1170	mg/L	D	6		E300.0	12/27/16 19:01 / jpv
Sulfate	1140	mg/L	D	20		E300.0	12/27/16 19:01 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/27/16 17:44 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 17:18 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 17:18 / jpv
Barium	0.05	mg/L		0.01		E200.7	12/28/16 14:04 / jh
Beryllium	0.003	mg/L		0.001		E200.8	12/28/16 17:18 / jpv
Boron	1.28	mg/L		0.05		E200.7	12/28/16 14:04 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:04 / jh
Chromium	ND	mg/L		0.01		E200.8	12/28/16 17:18 / jpv
Cobalt	0.04	mg/L		0.02		E200.7	12/28/16 14:04 / jh
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:18 / jpv
Lithium	1.00	mg/L	D	0.02		E200.7	12/28/16 14:04 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 16:55 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:04 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 17:18 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:18 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.7	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.42	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	1.3	pCi/L	U			RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.6	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	3.0	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.7	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-014
Client Sample ID: EQBK-12-20-16/SCM

Report Date: 01/12/17
Collection Date: 12/20/16 18:00
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	12/28/16 14:07 / jh
Magnesium	ND	mg/L		1		E200.7	12/28/16 14:07 / jh
Potassium	ND	mg/L		1		E200.7	12/28/16 14:07 / jh
Sodium	ND	mg/L		1		E200.7	12/28/16 14:07 / jh
PHYSICAL PROPERTIES							
pH	5.8	s.u.	H	0.1		A4500-H B	12/23/16 11:53 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	ND	mg/L		1		E300.0	12/27/16 19:15 / jpv
Sulfate	ND	mg/L		1		E300.0	12/27/16 19:15 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/27/16 17:52 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	12/28/16 14:07 / jh
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 17:21 / jpv
Barium	ND	mg/L		0.01		E200.7	12/28/16 14:07 / jh
Beryllium	ND	mg/L		0.001		E200.7	12/28/16 14:07 / jh
Boron	ND	mg/L		0.05		E200.7	12/28/16 14:07 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:07 / jh
Chromium	ND	mg/L		0.01		E200.7	12/28/16 14:07 / jh
Cobalt	ND	mg/L		0.02		E200.7	12/28/16 14:07 / jh
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:21 / jpv
Lithium	ND	mg/L		0.01		E200.7	12/28/16 14:07 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 16:57 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:07 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 17:21 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:21 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.26	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	-0.9	pCi/L	U			RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.8	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	3.1	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	-0.8	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.8	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	3.1	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-015
Client Sample ID: AP-MW5

Report Date: 01/12/17
Collection Date: 12/21/16 09:06
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	575	mg/L		1		E200.7	12/28/16 14:11 / jh
Magnesium	132	mg/L		1		E200.7	12/28/16 14:11 / jh
Potassium	47	mg/L		1		E200.7	12/28/16 14:11 / jh
Sodium	765	mg/L	D	4		E200.7	12/28/16 14:11 / jh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	12/23/16 11:56 / pjw
Solids, Total Dissolved TDS @ 180 C	4940	mg/L	D	40		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	480	mg/L	D	6		E300.0	12/27/16 19:30 / jpv
Sulfate	2960	mg/L	D	20		E300.0	12/27/16 19:30 / jpv
Fluoride	1.2	mg/L		0.1		A4500-F C	12/30/16 15:33 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 17:25 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	12/28/16 17:25 / jpv
Barium	ND	mg/L		0.01		E200.7	12/28/16 14:11 / jh
Beryllium	0.088	mg/L		0.001		E200.8	12/28/16 17:25 / jpv
Boron	3.66	mg/L		0.05		E200.7	12/28/16 14:11 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:11 / jh
Chromium	ND	mg/L		0.01		E200.8	12/28/16 17:25 / jpv
Cobalt	0.20	mg/L		0.02		E200.8	12/28/16 17:25 / jpv
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:25 / jpv
Lithium	0.66	mg/L	D	0.02		E200.7	12/28/16 14:11 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 16:59 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:11 / jh
Selenium	0.01	mg/L		0.01		E200.8	12/28/16 17:25 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:25 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.21	pCi/L	U			E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.27	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	4.3	pCi/L				RA-05	01/06/17 11:14 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	01/06/17 11:14 / eli-ca
Radium 228 MDC	2.7	pCi/L				RA-05	01/06/17 11:14 / eli-ca
Radium 226 + Radium 228	4.5	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.7	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-016
Client Sample ID: DUP-1

Report Date: 01/12/17
Collection Date: 12/21/16
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	523	mg/L		1		E200.7	12/28/16 14:15 / jh
Magnesium	121	mg/L		1		E200.7	12/28/16 14:15 / jh
Potassium	44	mg/L		1		E200.7	12/28/16 14:15 / jh
Sodium	711	mg/L	D	4		E200.7	12/28/16 14:15 / jh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	12/23/16 11:58 / pjw
Solids, Total Dissolved TDS @ 180 C	4750	mg/L	D	40		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	466	mg/L	D	6		E300.0	12/27/16 19:44 / jpv
Sulfate	2860	mg/L	D	20		E300.0	12/27/16 19:44 / jpv
Fluoride	1.2	mg/L		0.1		A4500-F C	12/30/16 15:58 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 17:28 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	12/28/16 17:28 / jpv
Barium	ND	mg/L		0.01		E200.7	12/28/16 14:15 / jh
Beryllium	0.084	mg/L		0.001		E200.8	12/28/16 17:28 / jpv
Boron	3.54	mg/L		0.05		E200.7	12/28/16 14:15 / jh
Cadmium	0.01	mg/L		0.01		E200.7	12/28/16 14:15 / jh
Chromium	ND	mg/L		0.01		E200.8	12/28/16 17:28 / jpv
Cobalt	0.19	mg/L		0.02		E200.8	12/28/16 17:28 / jpv
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:28 / jpv
Lithium	0.63	mg/L	D	0.02		E200.7	12/28/16 14:15 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 17:01 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:15 / jh
Selenium	0.01	mg/L		0.01		E200.8	12/28/16 17:28 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:28 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.6	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.39	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	-0.01	pCi/L	U			RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.3	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	1.6	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.3	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-017
Client Sample ID: SFL-MW5

Report Date: 01/12/17
Collection Date: 12/21/16 15:39
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	944	mg/L		1		E200.7	12/28/16 14:18 / jh
Magnesium	186	mg/L		1		E200.7	12/28/16 14:18 / jh
Potassium	61	mg/L	D	2		E200.7	12/28/16 14:18 / jh
Sodium	1790	mg/L	D	7		E200.7	12/28/16 14:18 / jh
PHYSICAL PROPERTIES							
pH	4.8	s.u.	H	0.1		A4500-H B	12/23/16 12:01 / pjw
Solids, Total Dissolved TDS @ 180 C	7910	mg/L	D	100		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	3160	mg/L	D	10		E300.0	12/27/16 20:27 / jpv
Sulfate	2170	mg/L	D	40		E300.0	12/27/16 20:27 / jpv
Fluoride	0.2	mg/L		0.1		A4500-F C	12/30/16 16:25 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 17:31 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 17:31 / jpv
Barium	0.03	mg/L		0.01		E200.7	12/28/16 14:18 / jh
Beryllium	0.010	mg/L		0.001		E200.8	12/28/16 17:31 / jpv
Boron	3.93	mg/L	D	0.07		E200.7	12/28/16 14:18 / jh
Cadmium	ND	mg/L		0.01		E200.8	12/28/16 17:31 / jpv
Chromium	ND	mg/L		0.01		E200.8	12/28/16 17:31 / jpv
Cobalt	0.06	mg/L		0.02		E200.8	12/28/16 17:31 / jpv
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:31 / jpv
Lithium	0.99	mg/L	D	0.04		E200.7	12/28/16 14:18 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 17:07 / ser
Molybdenum	ND	mg/L		0.05		E200.8	12/28/16 17:31 / jpv
Selenium	ND	mg/L		0.01		E200.8	12/28/16 17:31 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:31 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	4.1	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.87	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	4.6	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.4	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	8.7	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.8	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.4	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-018
Client Sample ID: SFL-MW2

Report Date: 01/12/17
Collection Date: 12/22/16 09:45
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	692	mg/L		1		E200.7	12/28/16 14:22 / jh
Magnesium	104	mg/L		1		E200.7	12/28/16 14:22 / jh
Potassium	44	mg/L		1		E200.7	12/28/16 14:22 / jh
Sodium	1600	mg/L	D	4		E200.7	12/28/16 14:22 / jh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	12/23/16 12:04 / pjw
Solids, Total Dissolved TDS @ 180 C	6830	mg/L	D	100		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	2590	mg/L	D	6		E300.0	12/27/16 21:11 / jpv
Sulfate	1770	mg/L	D	20		E300.0	12/27/16 21:11 / jpv
Fluoride	0.3	mg/L		0.1		A4500-F C	12/30/16 16:45 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 17:35 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 17:35 / jpv
Barium	0.02	mg/L		0.01		E200.7	12/28/16 14:22 / jh
Beryllium	0.001	mg/L		0.001		E200.8	12/28/16 17:35 / jpv
Boron	0.54	mg/L		0.05		E200.7	12/28/16 14:22 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:22 / jh
Chromium	ND	mg/L		0.01		E200.8	12/28/16 17:35 / jpv
Cobalt	0.06	mg/L		0.02		E200.7	12/28/16 14:22 / jh
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:35 / jpv
Lithium	0.60	mg/L	D	0.02		E200.7	12/28/16 14:22 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 17:09 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:22 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 17:35 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:35 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	2.9	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.64	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	3.7	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.4	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	6.6	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.7	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.4	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-019
Client Sample ID: SFL-MW3

Report Date: 01/12/17
Collection Date: 12/22/16 11:35
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	735	mg/L		1		E200.7	12/28/16 14:25 / jh
Magnesium	137	mg/L		1		E200.7	12/28/16 14:25 / jh
Potassium	57	mg/L		1		E200.7	12/28/16 14:25 / jh
Sodium	975	mg/L	D	4		E200.7	12/28/16 14:25 / jh
PHYSICAL PROPERTIES							
pH	3.8	s.u.	H	0.1		A4500-H B	12/23/16 12:06 / pjw
Solids, Total Dissolved TDS @ 180 C	5640	mg/L	D	100		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	1480	mg/L	D	6		E300.0	12/27/16 21:25 / jpv
Sulfate	2240	mg/L	D	20		E300.0	12/27/16 21:25 / jpv
Fluoride	0.6	mg/L		0.1		A4500-F C	12/30/16 16:55 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 17:38 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 17:38 / jpv
Barium	0.03	mg/L		0.01		E200.7	12/28/16 14:25 / jh
Beryllium	0.037	mg/L		0.001		E200.8	12/28/16 17:38 / jpv
Boron	2.81	mg/L		0.05		E200.7	12/28/16 14:25 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:25 / jh
Chromium	ND	mg/L		0.01		E200.8	12/28/16 17:38 / jpv
Cobalt	0.10	mg/L		0.02		E200.7	12/28/16 14:25 / jh
Lead	0.03	mg/L		0.01		E200.8	12/28/16 17:38 / jpv
Lithium	0.47	mg/L	D	0.02		E200.7	12/28/16 14:25 / jh
Mercury	0.003	mg/L		0.001		E245.1	12/29/16 15:22 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:25 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 17:38 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:38 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	2.8	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.62	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	2.9	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.4	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	5.8	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.6	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.4	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-020
Client Sample ID: SFL-MW4

Report Date: 01/12/17
Collection Date: 12/22/16 12:40
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	858	mg/L		1		E200.7	12/28/16 14:36 / jh
Magnesium	132	mg/L		1		E200.7	12/28/16 14:36 / jh
Potassium	59	mg/L		1		E200.7	12/28/16 14:36 / jh
Sodium	1150	mg/L	D	4		E200.7	12/28/16 14:36 / jh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	12/23/16 12:11 / pjw
Solids, Total Dissolved TDS @ 180 C	6000	mg/L	D	100		A2540 C	12/23/16 10:46 / jef
INORGANICS							
Chloride	1670	mg/L	D	6		E300.0	12/27/16 21:40 / jpv
Sulfate	2100	mg/L	D	20		E300.0	12/27/16 21:40 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/30/16 16:58 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	12/28/16 17:41 / jpv
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 17:41 / jpv
Barium	0.03	mg/L		0.01		E200.7	12/28/16 14:36 / jh
Beryllium	ND	mg/L		0.001		E200.8	12/28/16 17:41 / jpv
Boron	0.61	mg/L		0.05		E200.7	12/28/16 14:36 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:36 / jh
Chromium	ND	mg/L		0.01		E200.8	12/28/16 17:41 / jpv
Cobalt	0.04	mg/L		0.02		E200.7	12/28/16 14:36 / jh
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:41 / jpv
Lithium	0.58	mg/L	D	0.02		E200.7	12/28/16 14:36 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 17:13 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:36 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 17:41 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:41 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.71	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.21	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	-0.4	pCi/L	U			RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.5	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	0.4	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.5	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060
Lab ID: B16121644-021
Client Sample ID: EQBK 12-22-16/SCM

Report Date: 01/12/17
Collection Date: 12/22/16 10:10
DateReceived: 12/23/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	12/28/16 14:39 / jh
Magnesium	ND	mg/L		1		E200.7	12/28/16 14:39 / jh
Potassium	ND	mg/L		1		E200.7	12/28/16 14:39 / jh
Sodium	ND	mg/L		1		E200.7	12/28/16 14:39 / jh
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	12/23/16 12:14 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/23/16 11:46 / jef
INORGANICS							
Chloride	ND	mg/L		1		E300.0	12/27/16 21:55 / jpv
Sulfate	ND	mg/L		1		E300.0	12/27/16 21:55 / jpv
Fluoride	ND	mg/L		0.1		A4500-F C	12/30/16 17:07 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	12/28/16 14:39 / jh
Arsenic	ND	mg/L		0.01		E200.8	12/28/16 17:44 / jpv
Barium	ND	mg/L		0.01		E200.7	12/28/16 14:39 / jh
Beryllium	ND	mg/L		0.001		E200.7	12/28/16 14:39 / jh
Boron	ND	mg/L		0.05		E200.7	12/28/16 14:39 / jh
Cadmium	ND	mg/L		0.01		E200.7	12/28/16 14:39 / jh
Chromium	ND	mg/L		0.01		E200.7	12/28/16 14:39 / jh
Cobalt	ND	mg/L		0.02		E200.7	12/28/16 14:39 / jh
Lead	ND	mg/L		0.01		E200.8	12/28/16 17:44 / jpv
Lithium	ND	mg/L		0.01		E200.7	12/28/16 14:39 / jh
Mercury	ND	mg/L		0.001		E245.1	12/28/16 17:15 / ser
Molybdenum	ND	mg/L		0.05		E200.7	12/28/16 14:39 / jh
Selenium	ND	mg/L		0.01		E200.8	12/28/16 17:44 / jpv
Thallium	ND	mg/L		0.01		E200.8	12/28/16 17:44 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.12	pCi/L	U			E903.0	01/11/17 16:40 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	01/11/17 16:40 / eli-ca
Radium 228	-3	pCi/L	U			RA-05	01/06/17 12:53 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 228 MDC	2.5	pCi/L				RA-05	01/06/17 12:53 / eli-ca
Radium 226 + Radium 228	-2	pCi/L	U			A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca
Radium 226 + Radium 228 MDC	2.5	pCi/L				A7500-RA	01/12/17 12:49 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 105401
Lab ID: B16121540-007A DUP	Sample Duplicate					Run: BAL #SD-15_161222A				12/22/16 16:14
Solids, Total Dissolved TDS @ 180 C		8790	mg/L	100				0.1	5	
Lab ID: B16121644-005A DUP	Sample Duplicate					Run: BAL #SD-15_161222A				12/22/16 16:14
Solids, Total Dissolved TDS @ 180 C		6900	mg/L	100				1.3	5	
Lab ID: LCS-105401	Laboratory Control Sample					Run: BAL #SD-15_161222A				12/22/16 16:14
Solids, Total Dissolved TDS @ 180 C		1000	mg/L	10	100	90	110			
Lab ID: MB-105401	Method Blank					Run: BAL #SD-15_161222A				12/22/16 16:14
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Method: A2540 C										Batch: 105416
Lab ID: MB-105416	Method Blank					Run: BAL #SD-15_161223B				12/23/16 08:28
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	5						
Lab ID: LCS-105416	Laboratory Control Sample					Run: BAL #SD-15_161223B				12/23/16 08:29
Solids, Total Dissolved TDS @ 180 C		996	mg/L	10	99	90	110			
Lab ID: B16121731-007A DUP	Sample Duplicate					Run: BAL #SD-15_161223B				12/23/16 08:29
Solids, Total Dissolved TDS @ 180 C		1410	mg/L	10				0.8	5	
Lab ID: B16121644-012A DUP	Sample Duplicate					Run: BAL #SD-15_161223B				12/23/16 10:46
Solids, Total Dissolved TDS @ 180 C		1400	mg/L	20				0.4	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_161227A	
Lab ID: **ICV**	Initial Calibration Verification Standard								12/27/16 15:46	
Fluoride		0.990	mg/L	0.10	99	90	110			
Method: **A4500-F C**									Batch: R272315	
Lab ID: **MBLK**	Method Blank					Run: MAN-TECH_161227A			12/27/16 15:40	
Fluoride		ND	mg/L	0.03						
Lab ID: **LFB**	Laboratory Fortified Blank					Run: MAN-TECH_161227A			12/27/16 15:43	
Fluoride		1.01	mg/L	0.10	101	90	110			
Lab ID: **B16121513-001AMS**	Sample Matrix Spike					Run: MAN-TECH_161227A			12/27/16 15:59	
Fluoride		2.00	mg/L	0.10	102	80	120			
Lab ID: **B16121513-001AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_161227A			12/27/16 16:01	
Fluoride		1.99	mg/L	0.10	101	80	120	0.5	10	
Lab ID: **B16121644-007AMS**	Sample Matrix Spike					Run: MAN-TECH_161227A			12/27/16 16:59	
Fluoride		1.01	mg/L	0.10	94	80	120			
Lab ID: **B16121644-007AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_161227A			12/27/16 17:02	
Fluoride		1.02	mg/L	0.10	95	80	120	1.0	10	
Method: **A4500-F C**									Analytical Run: MAN-TECH_161230A	
Lab ID: **ICV**	Initial Calibration Verification Standard								12/30/16 15:22	
Fluoride		1.01	mg/L	0.10	101	90	110			
Method: **A4500-F C**									Batch: R272512	
Lab ID: **MBLK**	Method Blank					Run: MAN-TECH_161230A			12/30/16 15:16	
Fluoride		ND	mg/L	0.03						
Lab ID: **LFB**	Laboratory Fortified Blank					Run: MAN-TECH_161230A			12/30/16 15:19	
Fluoride		1.05	mg/L	0.10	105	90	110			
Lab ID: **B16121644-017AMS**	Sample Matrix Spike					Run: MAN-TECH_161230A			12/30/16 16:36	
Fluoride		1.17	mg/L	0.10	98	80	120			
Lab ID: **B16121644-017AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_161230A			12/30/16 16:43	
Fluoride		1.09	mg/L	0.10	90	80	120	7.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_161222A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								12/22/16 09:52	
pH		7.97	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R272118	
Lab ID: **B16121644-001ADUP**	Sample Duplicate					Run: PHSC _101-B_161222A			12/22/16 16:08	
pH		6.04	s.u.	0.10				0.7	3	
Lab ID: **B16121645-003ADUP**	Sample Duplicate					Run: PHSC _101-B_161222A			12/22/16 16:45	
pH		7.49	s.u.	0.10				0.1	3	
Method: **A4500-H B**									Analytical Run: PHSC _101-B_161223A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								12/23/16 08:37	
pH		7.97	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R272190	
Lab ID: **B16121644-009ADUP**	Sample Duplicate					Run: PHSC _101-B_161223A			12/23/16 11:40	
pH		5.53	s.u.	0.10				0.0	3	
Lab ID: **B16121644-019ADUP**	Sample Duplicate					Run: PHSC _101-B_161223A			12/23/16 12:09	
pH		3.84	s.u.	0.10				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_161227A	
Lab ID: ICV	6	Continuing Calibration Verification Standard							12/27/16 11:06	
Boron		2.46	mg/L	0.10	98	95	105			
Calcium		25.1	mg/L	1.0	101	95	105			
Lithium		1.26	mg/L	0.10	101	95	105			
Magnesium		25.1	mg/L	1.0	100	95	105			
Potassium		25.0	mg/L	1.0	100	95	105			
Sodium		25.0	mg/L	1.0	100	95	105			
Method: E200.7									Batch: 105395	
Lab ID: MB-105395	6	Method Blank				Run: ICP203-B_161227A			12/27/16 12:54	
Boron		ND	mg/L	0.003						
Calcium		0.08	mg/L	0.03						
Lithium		0.007	mg/L	0.002						
Magnesium		ND	mg/L	0.04						
Potassium		ND	mg/L	0.08						
Sodium		ND	mg/L	0.4						
Lab ID: LCS-105395	6	Laboratory Control Sample				Run: ICP203-B_161227A			12/27/16 12:58	
Boron		0.516	mg/L	0.10	103	85	115			
Calcium		27.7	mg/L	1.0	110	85	115			
Lithium		0.556	mg/L	0.10	110	85	115			
Magnesium		27.8	mg/L	1.0	111	85	115			
Potassium		27.4	mg/L	1.0	110	85	115			
Sodium		27.7	mg/L	1.0	111	85	115			
Lab ID: B16121242-002AMS3	6	Sample Matrix Spike				Run: ICP203-B_161227A			12/27/16 13:12	
Boron		1.18	mg/L	0.050	103	70	130			
Calcium		253	mg/L	1.0		70	130			A
Lithium		1.11	mg/L	0.10	103	70	130			
Magnesium		122	mg/L	1.0	113	70	130			
Potassium		61.3	mg/L	1.0	105	70	130			
Sodium		131	mg/L	1.8	120	70	130			
Lab ID: B16121242-002AMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_161227A			12/27/16 13:22	
Boron		1.16	mg/L	0.050	102	70	130	1.3	20	
Calcium		249	mg/L	1.0		70	130	1.6	20	A
Lithium		1.11	mg/L	0.10	103	70	130	0.1	20	
Magnesium		121	mg/L	1.0	111	70	130	0.8	20	
Potassium		61.1	mg/L	1.0	105	70	130	0.3	20	
Sodium		130	mg/L	1.8	117	70	130	1.3	20	
Lab ID: B16121696-004BMS3	6	Sample Matrix Spike				Run: ICP203-B_161227A			12/27/16 14:11	
Boron		0.886	mg/L	0.050	103	70	130			
Calcium		136	mg/L	1.0		70	130			A
Lithium		0.604	mg/L	0.10	104	70	130			
Magnesium		78.7	mg/L	1.0	107	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 105395
Lab ID: B16121696-004BMS3	6	Sample Matrix Spike				Run: ICP203-B_161227A				12/27/16 14:11
Potassium		39.9	mg/L	1.0	104	70	130			
Sodium		179	mg/L	1.0		70	130			A
Lab ID: B16121696-004BMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_161227A				12/27/16 14:15
Boron		1.44	mg/L	0.050	107	70	130	47	20	R
Calcium		165	mg/L	1.0		70	130	19	20	A
Lithium		1.15	mg/L	0.10	107	70	130	63	20	R
Magnesium		107	mg/L	1.0	111	70	130	31	20	R
Potassium		67.7	mg/L	1.0	108	70	130	52	20	R
Sodium		210	mg/L	1.0		70	130	15	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_161228A	
Lab ID: ICV	13	Continuing Calibration Verification Standard							12/28/16 09:49	
Antimony		2.58	mg/L	0.050	103	95	105			
Barium		2.49	mg/L	0.10	99	95	105			
Beryllium		1.25	mg/L	0.010	100	95	105			
Boron		2.51	mg/L	0.10	100	95	105			
Cadmium		2.48	mg/L	0.010	99	95	105			
Calcium		25.1	mg/L	1.0	101	95	105			
Chromium		2.45	mg/L	0.050	98	95	105			
Cobalt		2.49	mg/L	0.020	99	95	105			
Lithium		1.26	mg/L	0.10	101	95	105			
Magnesium		24.9	mg/L	1.0	99	95	105			
Molybdenum		2.52	mg/L	0.10	101	95	105			
Potassium		24.9	mg/L	1.0	99	95	105			
Sodium		25.0	mg/L	1.0	100	95	105			
Method: E200.7									Batch: 105432	
Lab ID: MB-105432	8	Method Blank				Run: ICP203-B_161228A			12/28/16 12:10	
Antimony		ND	mg/L	0.02						
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.03						
Lithium		0.007	mg/L	0.002						
Magnesium		ND	mg/L	0.04						
Molybdenum		ND	mg/L	0.004						
Potassium		ND	mg/L	0.08						
Sodium		ND	mg/L	0.4						
Lab ID: LCS-105432	8	Laboratory Control Sample				Run: ICP203-B_161228A			12/28/16 12:14	
Antimony		0.526	mg/L	0.10	105	85	115			
Boron		0.468	mg/L	0.10	94	85	115			
Calcium		25.0	mg/L	1.0	100	85	115			
Lithium		0.506	mg/L	0.10	100	85	115			
Magnesium		24.9	mg/L	1.0	100	85	115			
Molybdenum		0.489	mg/L	0.10	98	85	115			
Potassium		24.8	mg/L	1.0	99	85	115			
Sodium		24.9	mg/L	1.0	100	85	115			
Lab ID: B16121644-003BMS3	8	Sample Matrix Spike				Run: ICP203-B_161228A			12/28/16 12:32	
Antimony		0.325	mg/L	0.022	65	70	130			S
Boron		1.29	mg/L	0.050	97	70	130			
Calcium		643	mg/L	1.0		70	130			A
Lithium		1.61	mg/L	0.10	92	70	130			
Magnesium		168	mg/L	1.0		70	130			A
Molybdenum		0.441	mg/L	0.0043	86	70	130			
Potassium		77.4	mg/L	1.0	96	70	130			
Sodium		1200	mg/L	1.0		70	130			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 105432	
Lab ID: B16121644-003BMSD	8	Sample Matrix Spike Duplicate				Run: ICP203-B_161228A			12/28/16 12:36	
Antimony		0.320	mg/L	0.022	64	70	130	1.4	20	S
Boron		1.37	mg/L	0.050	113	70	130	5.8	20	
Calcium		691	mg/L	1.0		70	130	7.2	20	A
Lithium		1.73	mg/L	0.10	116	70	130	7.0	20	
Magnesium		179	mg/L	1.0		70	130	6.1	20	A
Molybdenum		0.441	mg/L	0.0043	86	70	130	0.0	20	
Potassium		82.0	mg/L	1.0	114	70	130	5.8	20	
Sodium		1280	mg/L	1.0		70	130	6.5	20	A
Method: E200.7									Batch: 105433	
Lab ID: MB-105433	13	Method Blank				Run: ICP203-B_161228A			12/28/16 12:58	
Antimony		ND	mg/L	0.02						
Barium		ND	mg/L	0.0003						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0008						
Calcium		ND	mg/L	0.03						
Chromium		ND	mg/L	0.002						
Cobalt		0.004	mg/L	0.001						
Lithium		0.007	mg/L	0.002						
Magnesium		ND	mg/L	0.04						
Molybdenum		0.006	mg/L	0.004						
Potassium		ND	mg/L	0.08						
Sodium		ND	mg/L	0.4						
Lab ID: LCS-105433	13	Laboratory Control Sample				Run: ICP203-B_161228A			12/28/16 13:01	
Antimony		0.529	mg/L	0.10	106	85	115			
Barium		0.531	mg/L	0.10	106	85	115			
Beryllium		0.267	mg/L	0.010	107	85	115			
Boron		0.502	mg/L	0.10	100	85	115			
Cadmium		0.257	mg/L	0.010	103	85	115			
Calcium		26.6	mg/L	1.0	106	85	115			
Chromium		0.513	mg/L	0.050	103	85	115			
Cobalt		0.522	mg/L	0.050	104	85	115			
Lithium		0.541	mg/L	0.10	107	85	115			
Magnesium		26.4	mg/L	1.0	105	85	115			
Molybdenum		0.509	mg/L	0.10	101	85	115			
Potassium		26.4	mg/L	1.0	105	85	115			
Sodium		26.5	mg/L	1.0	106	85	115			
Lab ID: B16121644-009BMS3	13	Sample Matrix Spike				Run: ICP203-B_161228A			12/28/16 13:15	
Antimony		0.551	mg/L	0.043	110	70	130			
Barium		0.539	mg/L	0.050	103	70	130			
Beryllium		0.264	mg/L	0.0010	104	70	130			
Boron		4.31	mg/L	0.050		70	130			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 105433	
Lab ID: B16121644-009BMS3	13	Sample Matrix Spike				Run: ICP203-B_161228A			12/28/16 13:15	
Cadmium		0.255	mg/L	0.0016	101	70	130			
Calcium		159	mg/L	1.0		70	130			A
Chromium		0.489	mg/L	0.0050	98	70	130			
Cobalt		0.560	mg/L	0.0050	101	70	130			
Lithium		0.580	mg/L	0.10	102	70	130			
Magnesium		45.8	mg/L	1.0	99	70	130			
Molybdenum		0.532	mg/L	0.0086	102	70	130			
Potassium		37.1	mg/L	1.0	100	70	130			
Sodium		263	mg/L	1.0		70	130			A
Lab ID: B16121644-009BMSD	13	Sample Matrix Spike Duplicate				Run: ICP203-B_161228A			12/28/16 13:19	
Antimony		0.553	mg/L	0.043	111	70	130	0.5	20	
Barium		0.535	mg/L	0.050	102	70	130	0.7	20	
Beryllium		0.265	mg/L	0.0010	105	70	130	0.4	20	
Boron		4.20	mg/L	0.050		70	130	2.6	20	A
Cadmium		0.260	mg/L	0.0016	102	70	130	1.8	20	
Calcium		156	mg/L	1.0		70	130	1.7	20	A
Chromium		0.488	mg/L	0.0050	98	70	130	0.3	20	
Cobalt		0.567	mg/L	0.0050	102	70	130	1.1	20	
Lithium		0.580	mg/L	0.10	102	70	130	0.0	20	
Magnesium		45.5	mg/L	1.0	98	70	130	0.6	20	
Molybdenum		0.517	mg/L	0.0086	99	70	130	2.8	20	
Potassium		36.8	mg/L	1.0	99	70	130	0.7	20	
Sodium		256	mg/L	1.0		70	130	2.4	20	A
Lab ID: B16121664-001BMS3	13	Sample Matrix Spike				Run: ICP203-B_161228A			12/28/16 14:53	
Antimony		0.538	mg/L	0.022	108	70	130			
Barium		0.631	mg/L	0.050	106	70	130			
Beryllium		0.265	mg/L	0.0010	106	70	130			
Boron		0.547	mg/L	0.050	105	70	130			
Cadmium		0.259	mg/L	0.0010	104	70	130			
Calcium		55.2	mg/L	1.0	108	70	130			
Chromium		0.515	mg/L	0.0050	103	70	130			
Cobalt		0.524	mg/L	0.0050	104	70	130			
Lithium		0.605	mg/L	0.10	108	70	130			
Magnesium		33.4	mg/L	1.0	109	70	130			
Molybdenum		0.509	mg/L	0.0043	102	70	130			
Potassium		32.4	mg/L	1.0	109	70	130			
Sodium		81.6	mg/L	1.0	107	70	130			
Lab ID: B16121664-001BMSD	13	Sample Matrix Spike Duplicate				Run: ICP203-B_161228A			12/28/16 14:56	
Antimony		0.517	mg/L	0.022	103	70	130	4.1	20	
Barium		0.627	mg/L	0.050	106	70	130	0.6	20	
Beryllium		0.264	mg/L	0.0010	106	70	130	0.5	20	
Boron		0.542	mg/L	0.050	104	70	130	0.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 105433
Lab ID: B16121664-001BMSD	13	Sample Matrix Spike Duplicate				Run: ICP203-B_161228A				12/28/16 14:56
Cadmium		0.261	mg/L	0.0010	105	70	130	0.8	20	
Calcium		55.2	mg/L	1.0	107	70	130	0.1	20	
Chromium		0.513	mg/L	0.0050	103	70	130	0.5	20	
Cobalt		0.525	mg/L	0.0050	104	70	130	0.2	20	
Lithium		0.600	mg/L	0.10	107	70	130	0.8	20	
Magnesium		33.2	mg/L	1.0	108	70	130	0.5	20	
Molybdenum		0.518	mg/L	0.0043	104	70	130	1.7	20	
Potassium		32.2	mg/L	1.0	108	70	130	0.7	20	
Sodium		81.3	mg/L	1.0	106	70	130	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_161223A	
Lab ID: QCS	9	Initial Calibration Verification Standard							12/23/16 12:57	
Arsenic		0.0491	mg/L	0.0050	98	90	110			
Barium		0.0500	mg/L	0.10	100	90	110			
Beryllium		0.0245	mg/L	0.0010	98	90	110			
Cadmium		0.0251	mg/L	0.0010	100	90	110			
Chromium		0.0500	mg/L	0.010	100	90	110			
Cobalt		0.0511	mg/L	0.010	102	90	110			
Lead		0.0482	mg/L	0.010	96	90	110			
Selenium		0.0504	mg/L	0.0050	101	90	110			
Thallium		0.0485	mg/L	0.10	97	90	110			
Method: E200.8									Batch: 105395	
Lab ID: MB-105395	9	Method Blank				Run: ICPMS206-B_161223A			12/23/16 14:36	
Arsenic		ND	mg/L	7E-05						
Barium		ND	mg/L	9E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: LCS-105395	9	Laboratory Control Sample				Run: ICPMS206-B_161223A			12/23/16 14:53	
Arsenic		0.487	mg/L	0.0010	97	85	115			
Barium		0.504	mg/L	0.010	101	85	115			
Beryllium		0.235	mg/L	0.0010	94	85	115			
Cadmium		0.246	mg/L	0.0010	98	85	115			
Chromium		0.498	mg/L	0.0010	100	85	115			
Cobalt		0.507	mg/L	0.0010	101	85	115			
Lead		0.498	mg/L	0.0010	100	85	115			
Selenium		0.504	mg/L	0.0050	101	85	115			
Thallium		0.493	mg/L	0.0010	99	85	115			
Lab ID: B16121242-002AMS3	9	Sample Matrix Spike				Run: ICPMS206-B_161223A			12/23/16 14:56	
Arsenic		0.941	mg/L	0.0010	94	70	130			
Barium		1.04	mg/L	0.050	98	70	130			
Beryllium		0.442	mg/L	0.0010	88	70	130			
Cadmium		0.452	mg/L	0.0010	91	70	130			
Chromium		0.964	mg/L	0.0050	96	70	130			
Cobalt		0.961	mg/L	0.0050	96	70	130			
Lead		0.974	mg/L	0.0010	97	70	130			
Selenium		0.971	mg/L	0.0010	97	70	130			
Thallium		0.925	mg/L	0.00050	92	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 105395
Lab ID: B16121242-002AMSD	9	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161223A				12/23/16 14:59
Arsenic		0.992	mg/L	0.0010	99	70	130	5.4	20	
Barium		1.07	mg/L	0.050	102	70	130	3.3	20	
Beryllium		0.454	mg/L	0.0010	91	70	130	2.7	20	
Cadmium		0.466	mg/L	0.0010	93	70	130	3.0	20	
Chromium		0.999	mg/L	0.0050	100	70	130	3.6	20	
Cobalt		0.987	mg/L	0.0050	99	70	130	2.6	20	
Lead		1.01	mg/L	0.0010	101	70	130	3.5	20	
Selenium		0.974	mg/L	0.0010	97	70	130	0.3	20	
Thallium		0.986	mg/L	0.00050	99	70	130	6.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_161228A	
Lab ID: QCS	10	Initial Calibration Verification Standard							12/28/16 10:21	
Antimony		0.0480	mg/L	0.050	96	90	110			
Arsenic		0.0488	mg/L	0.0050	98	90	110			
Beryllium		0.0238	mg/L	0.0010	95	90	110			
Cadmium		0.0251	mg/L	0.0010	100	90	110			
Chromium		0.0506	mg/L	0.010	101	90	110			
Cobalt		0.0506	mg/L	0.010	101	90	110			
Lead		0.0484	mg/L	0.010	97	90	110			
Molybdenum		0.0469	mg/L	0.0050	94	90	110			
Selenium		0.0490	mg/L	0.0050	98	90	110			
Thallium		0.0483	mg/L	0.10	97	90	110			
Method: E200.8									Batch: 105432	
Lab ID: MB-105432	2	Method Blank				Run: ICPMS206-B_161228A			12/28/16 14:26	
Antimony		ND	mg/L	3E-05						
Molybdenum		ND	mg/L	3E-05						
Lab ID: LCS-105432	2	Laboratory Control Sample				Run: ICPMS206-B_161228A			12/28/16 14:46	
Antimony		0.502	mg/L	0.0010	100	85	115			
Molybdenum		0.503	mg/L	0.0010	101	85	115			
Lab ID: B16121251-020AMS3	2	Sample Matrix Spike				Run: ICPMS206-B_161228A			12/28/16 14:49	
Antimony		0.506	mg/L	0.0010	101	70	130			
Molybdenum		0.516	mg/L	0.0010	99	70	130			
Lab ID: B16121251-020AMSD	2	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161228A			12/28/16 14:53	
Antimony		0.507	mg/L	0.0010	101	70	130	0.2	20	
Molybdenum		0.515	mg/L	0.0010	99	70	130	0.3	20	
Lab ID: B16121644-003BMS3	2	Sample Matrix Spike				Run: ICPMS206-B_161228A			12/28/16 14:56	
Antimony		0.345	mg/L	0.0010	69	70	130			S
Molybdenum		0.508	mg/L	0.0010	102	70	130			
Lab ID: B16121644-003BMSD	2	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161228A			12/28/16 14:59	
Antimony		0.322	mg/L	0.0010	64	70	130	6.9	20	S
Molybdenum		0.483	mg/L	0.0010	97	70	130	5.0	20	
Method: E200.8									Batch: 105433	
Lab ID: MB-105433	10	Method Blank				Run: ICPMS206-B_161228A			12/28/16 16:09	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 105433
Lab ID: MB-105433	10	Method Blank				Run: ICPMS206-B_161228A				12/28/16 16:09
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						
Lab ID: LCS-105433	10	Laboratory Control Sample				Run: ICPMS206-B_161228A				12/28/16 16:19
Antimony		0.520	mg/L	0.0010	104	85	115			
Arsenic		0.502	mg/L	0.0010	100	85	115			
Beryllium		0.241	mg/L	0.0010	96	85	115			
Cadmium		0.259	mg/L	0.0010	104	85	115			
Chromium		0.496	mg/L	0.0050	99	85	115			
Cobalt		0.517	mg/L	0.0050	103	85	115			
Lead		0.517	mg/L	0.0010	103	85	115			
Molybdenum		0.501	mg/L	0.0010	100	85	115			
Selenium		0.526	mg/L	0.0010	105	85	115			
Thallium		0.521	mg/L	0.00050	104	85	115			
Lab ID: B16121644-009BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_161228A				12/28/16 16:22
Antimony		0.530	mg/L	0.0010	106	70	130			
Arsenic		0.492	mg/L	0.0010	98	70	130			
Beryllium		0.223	mg/L	0.0010	88	70	130			
Cadmium		0.261	mg/L	0.0010	103	70	130			
Chromium		0.480	mg/L	0.0050	96	70	130			
Cobalt		0.546	mg/L	0.0050	100	70	130			
Lead		0.505	mg/L	0.0010	101	70	130			
Molybdenum		0.515	mg/L	0.0010	103	70	130			
Selenium		0.496	mg/L	0.0010	99	70	130			
Thallium		0.495	mg/L	0.00050	99	70	130			
Lab ID: B16121644-009BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161228A				12/28/16 16:25
Antimony		0.520	mg/L	0.0010	104	70	130	2.0	20	
Arsenic		0.496	mg/L	0.0010	99	70	130	0.8	20	
Beryllium		0.223	mg/L	0.0010	88	70	130	0.0	20	
Cadmium		0.260	mg/L	0.0010	102	70	130	0.7	20	
Chromium		0.494	mg/L	0.0050	99	70	130	2.8	20	
Cobalt		0.579	mg/L	0.0050	107	70	130	5.9	20	
Lead		0.510	mg/L	0.0010	102	70	130	1.0	20	
Molybdenum		0.514	mg/L	0.0010	103	70	130	0.2	20	
Selenium		0.510	mg/L	0.0010	102	70	130	2.7	20	
Thallium		0.499	mg/L	0.00050	100	70	130	0.9	20	
Lab ID: B16121664-001BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_161228A				12/28/16 18:01
Antimony		0.505	mg/L	0.0010	101	70	130			
Arsenic		0.485	mg/L	0.0010	97	70	130			
Beryllium		0.235	mg/L	0.0010	94	70	130			
Cadmium		0.250	mg/L	0.0010	100	70	130			
Chromium		0.485	mg/L	0.0050	97	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 105433
Lab ID: **B16121664-001BMS3**	10	Sample Matrix Spike				Run: ICPMS206-B_161228A				12/28/16 18:01
Cobalt		0.509	mg/L	0.0050	102	70	130			
Lead		0.505	mg/L	0.0010	101	70	130			
Molybdenum		0.496	mg/L	0.0010	99	70	130			
Selenium		0.503	mg/L	0.0010	101	70	130			
Thallium		0.497	mg/L	0.00050	99	70	130			
Lab ID: **B16121664-001BMSD**	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_161228A				12/28/16 18:04
Antimony		0.515	mg/L	0.0010	103	70	130	2.1	20	
Arsenic		0.481	mg/L	0.0010	96	70	130	0.8	20	
Beryllium		0.232	mg/L	0.0010	93	70	130	1.2	20	
Cadmium		0.255	mg/L	0.0010	102	70	130	1.7	20	
Chromium		0.487	mg/L	0.0050	97	70	130	0.4	20	
Cobalt		0.496	mg/L	0.0050	99	70	130	2.4	20	
Lead		0.507	mg/L	0.0010	101	70	130	0.4	20	
Molybdenum		0.503	mg/L	0.0010	100	70	130	1.3	20	
Selenium		0.492	mg/L	0.0010	98	70	130	2.1	20	
Thallium		0.502	mg/L	0.00050	100	70	130	1.0	20	
Method: **E200.8**										Analytical Run: ICPMS206-B_161229A
Lab ID: **QCS**		Initial Calibration Verification Standard								12/29/16 14:41
Beryllium		0.0247	mg/L	0.0010	99	90	110			
Method: **E200.8**										Batch: 105433
Lab ID: **MB-105433**	10	Method Blank				Run: ICPMS206-B_161229A				12/29/16 16:21
Antimony		8E-05	mg/L	3E-05						
Arsenic		ND	mg/L	7E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	1.0E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_161223B	
Lab ID: **ICV**		Initial Calibration Verification Standard							12/23/16 12:17	
Mercury		0.00204	mg/L	0.00010	102	90	110			
Method: **E245.1**									Batch: 105396	
Lab ID: **MB-105396**		Method Blank				Run: HGCV202-B_161223B			12/23/16 12:22	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-105396**		Laboratory Control Sample				Run: HGCV202-B_161223B			12/23/16 12:23	
Mercury		0.00204	mg/L	0.00010	102	85	115			
Lab ID: **B16121398-001BMS**		Sample Matrix Spike				Run: HGCV202-B_161223B			12/23/16 12:27	
Mercury		0.00199	mg/L	0.00010	100	70	130			
Lab ID: **B16121398-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161223B			12/23/16 12:29	
Mercury		0.00203	mg/L	0.00010	101	70	130	1.6	30	
Lab ID: **B16121644-008BMS**		Sample Matrix Spike				Run: HGCV202-B_161223B			12/23/16 12:53	
Mercury		0.00197	mg/L	0.00010	96	70	130			
Lab ID: **B16121644-008BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161223B			12/23/16 12:55	
Mercury		0.00200	mg/L	0.00010	98	70	130	1.9	30	
Method: **E245.1**									Analytical Run: HGCV202-B_161228A	
Lab ID: **ICV**		Initial Calibration Verification Standard							12/28/16 16:14	
Mercury		0.00196	mg/L	0.00010	98	90	110			
Method: **E245.1**									Batch: 105442	
Lab ID: **MB-105442**		Method Blank				Run: HGCV202-B_161228A			12/28/16 16:37	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-105442**		Laboratory Control Sample				Run: HGCV202-B_161228A			12/28/16 16:39	
Mercury		0.00199	mg/L	0.00010	100	85	115			
Lab ID: **B16121260-001BMS**		Sample Matrix Spike				Run: HGCV202-B_161228A			12/28/16 16:43	
Mercury		0.00201	mg/L	0.00010	101	70	130			
Lab ID: **B16121260-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161228A			12/28/16 16:45	
Mercury		0.00201	mg/L	0.00010	101	70	130	0.0	30	
Lab ID: **B16121770-002AMS**		Sample Matrix Spike				Run: HGCV202-B_161228A			12/28/16 17:23	
Mercury		0.00198	mg/L	0.00010	98	70	130			
Lab ID: **B16121770-002AMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161228A			12/28/16 17:25	
Mercury		0.00199	mg/L	0.00010	99	70	130	0.8	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 01/09/17
Project: TMPA-6706-15-0060
Work Order: B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_161229A	
Lab ID: **ICV**		Initial Calibration Verification Standard							12/29/16 14:48	
Mercury		0.00191	mg/L	0.00010	96	90	110			
Method: **E245.1**									Batch: 105510	
Lab ID: **MB-105510**		Method Blank				Run: HGCV202-B_161229A			12/29/16 15:16	
Mercury		ND	mg/L	4E-06						
Lab ID: **LCS-105510**		Laboratory Control Sample				Run: HGCV202-B_161229A			12/29/16 15:18	
Mercury		0.00198	mg/L	0.00010	99	85	115			
Lab ID: **B16121958-001CMS**		Sample Matrix Spike				Run: HGCV202-B_161229A			12/29/16 15:30	
Mercury		0.00208	mg/L	0.00010	104	70	130			
Lab ID: **B16121958-001CMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_161229A			12/29/16 15:32	
Mercury		0.00206	mg/L	0.00010	103	70	130	1.1	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC METROHM 1_161223A	
Lab ID: **ICV**	2	Initial Calibration Verification Standard							12/23/16 09:43	
Chloride		2.03	mg/L	1.0	90	90	110			
Sulfate		8.41	mg/L	1.0	93	90	110			
Method: **E300.0**									Batch: R272287	
Lab ID: **ICB**	2	Method Blank				Run: IC METROHM 1_161223A			12/23/16 09:57	
Chloride		ND	mg/L	0.008						
Sulfate		ND	mg/L	0.06						
Lab ID: **LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_161223A			12/23/16 10:11	
Chloride		9.99	mg/L	1.0	100	90	110			
Sulfate		29.6	mg/L	1.0	99	90	110			
Lab ID: **B16121644-002AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_161223A			12/23/16 14:09	
Chloride		10.5	mg/L	1.0	104	90	110			
Sulfate		31.1	mg/L	1.0	103	90	110			
Lab ID: **B16121644-002AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_161223A			12/23/16 14:23	
Chloride		10.5	mg/L	1.0	105	90	110	0.6	20	
Sulfate		31.2	mg/L	1.0	104	90	110	0.5	20	
Lab ID: **B16121645-004AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_161223A			12/23/16 17:25	
Chloride		53.1	mg/L	1.0	103	90	110			
Sulfate		163	mg/L	1.0	102	90	110			
Lab ID: **B16121645-004AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_161223A			12/23/16 17:39	
Chloride		53.4	mg/L	1.0	103	90	110	0.6	20	
Sulfate		165	mg/L	1.0	103	90	110	0.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 01/09/17

Project: TMPA-6706-15-0060 **Work Order:** B16121644

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 2_161227A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							12/27/16 16:07	
Chloride			2.07	mg/L	1.0	92	90	110			
Sulfate			8.64	mg/L	1.0	96	90	110			
Method:	**E300.0**									Batch: R272357	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 2_161227A			12/27/16 16:22	
Chloride			ND	mg/L	0.004						
Sulfate			ND	mg/L	0.02						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_161227A			12/27/16 16:36	
Chloride			10.4	mg/L	1.0	104	90	110			
Sulfate			31.1	mg/L	1.0	104	90	110			
Lab ID:	**B16121479-001AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_161227A			12/27/16 17:19	
Chloride			1210	mg/L	3.0	105	90	110			
Sulfate			1620	mg/L	9.1	105	90	110			
Lab ID:	**B16121479-001AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_161227A			12/27/16 17:34	
Chloride			1160	mg/L	3.0	95	90	110	4.2	20	
Sulfate			1610	mg/L	9.1	104	90	110	0.3	20	
Lab ID:	**B16121644-017AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_161227A			12/27/16 20:42	
Chloride			5130	mg/L	12	99	90	110			
Sulfate			8500	mg/L	37	105	90	110			
Lab ID:	**B16121644-017AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_161227A			12/27/16 20:56	
Chloride			5110	mg/L	12	98	90	110	0.4	20	
Sulfate			8440	mg/L	37	104	90	110	0.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060

Report Date: 01/12/17
Work Order: B16121644

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8357
Lab ID: LCS-RA226-8357	Laboratory Control Sample				Run: G542M_170103B				01/11/17 14:24
Radium 226	10	pCi/L		100	80	120			
Lab ID: MB-RA226-8357	Method Blank				Run: G542M_170103B				01/11/17 14:24
Radium 226	0.003	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B16121644-008CMS	Sample Matrix Spike				Run: G542M_170103B				01/11/17 14:24
Radium 226	28	pCi/L		96	70	130			
Lab ID: B16121644-008CMSD	Sample Matrix Spike Duplicate				Run: G542M_170103B				01/11/17 14:24
Radium 226	24	pCi/L		79	70	130	17	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA-6706-15-0060

Report Date: 01/12/17
Work Order: B16121644

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5391
Lab ID: LCS-228-RA226-8357	Laboratory Control Sample				Run: G5000W_170103B				01/06/17 11:14
Radium 228	7.4	pCi/L		105	80	120			
Lab ID: MB-RA226-8357	Method Blank				Run: G5000W_170103B				01/06/17 12:23
Radium 228	-0.2	pCi/L							U
Radium 228 precision (±)	1	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: B16121644-015CMS	Sample Matrix Spike				Run: G5000W_170103B				01/06/17 11:15
Radium 228	25	pCi/L		115	70	130			
Lab ID: B16121644-015CMSD	Sample Matrix Spike Duplicate				Run: G5000W_170103B				01/06/17 11:15
Radium 228	18	pCi/L		76	70	130	31	20	R

- Due to nonhomogeneity of the sample the Duplicate RPD is outside of the acceptance range for this analysis.

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

Work Order Receipt Checklist

Texas Municipal Power Agency B16121644

Login completed by: Leslie S. Cadreau
Date Received: 12/22/2016
Reviewed by: BL2000\cindy
Received by: lab
Reviewed Date: 12/28/2016
Carrier name: Return-UPS NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Submitted via EnergyExpress on 12/22/2016 1:31:07 PM

The Temperature Blank temperature for Cooler 1 was 3.6°C melted ice and Cooler 2 was 1.5°C on ice.

The collection time for sample EQBK-MPS-122116 is 13:15 on the Chain of Custody but on the container label it's 13:00. Proceeded with the collection time as indicated on the Chain of Custody.

Samples AP-MW3, SFL-MW1, EQBK-MPS 12116, DUP-2, SSP-MW4, EQBK 12-20-16/SCM, AP-MW5, DUP-1, SFL-MW5, SFL-MW2, SFL-MW3, SFL-MW4 and EQBK 12-22-16/SCM were received on 12/23/16 at 09:45 by Lisa Bradley on ice from Return UPS NDA. The Temperature Blank temperature for Cooler 1 was 0.6°C, Cooler 2 was 0.2°C, Cooler 3 was 0.0°C and Cooler 4 was 0.1°C.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	AMEC FOSTER WHEELER
Contact	GREG SEIFERT
Phone	512.795.0360
Mailing Address	8755 S. CAPITAL OF TX. HWY.
City, State, Zip	STE. 375, AUSTIN, TX 78704
Email	GREG.SEIFERT@AMECFW.COM
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

PLEASE CONTACT G. SEIFERT W/ QUESTIONS.
512-795-0360

Project Information

Project Name, PWSID, Permit, etc.	TMPA-6706-15.0060
Sampler Name	MASON STEVENS
Sampler Phone	512.795.0360
Sample Origin State	TEXAS
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2	See Attached	RUSH TAT	EL LAB ID (Laboratory Use Only)
1	SSP/AP-MW-1	12-20-16	1417	4	W	X	X			B16121644-003
2	SSP-MW-2	12-20-16	1610	4	W	X	X			-005
3	SSP-MW-3	12-20-16	1720	4	W	X	X			-006
4	EQBK-MPS-122016	12-20-16	1750	4	W	X	X			-001
5	AP-MW-3	12-21-16	0916	4	W	X	X			-009
6	SFL-MW-1	12-21-16	1130	2	W	X	X			-010
7	SFL-MW-6	12-21-16	1232	4	W	X	X			-008
8	EQBK-MPS-122116	12-21-16	1315	4	W	X	X			-011
9	DUP-2	12-21-16	—	4	W	X	X			-012
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	MASON P. STEVENS	12-21-16/1400				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
	Samuel C. Macon	12-21-16/1630		Lisa Bradley	12-23-16 9:45	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	AMEC Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of Tx Hwy Ste 375
City, State, Zip	Austin, Tx, 78704
Email	Greg.Seifert@amecfw.com
Receive Invoice	X Hard Copy X Email
Receive Report	☐ Hard Copy X Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Contact G. Seifert w/ questions
512-795-0360

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Samuel Macon
Sampler Phone	512-413-387[illegible]
Sample Origin State	Texas
EPA/State Compliance	X Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI-LAB ID (Laboratory Use Only)
1	SSP-MW4	12-20-16	1652	4	W	X	X			B1612644-013
2	EQBK 12-20-16/SCM	12-20-16	1809	4	W	X	X			-014
3	AP-MW5	12-21-16	0906	4	W	X	X			-015
4	AP-MW4	12-21-16	1042	4	W	X	X			-007
5	AP-MW1D	12-21-16	1216	4	W	X	X			-004
6	EQBK 12-21-16/SCM	12-21-16	1337	4	W	X	X			-002
7	Dup-1	12-21-16	—	4	W	X	X			-016
8	SFL-MW5	12-21-16	1539	4	W	X	X			-017
9										
10	[redacted]									

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Samuel C. Macon	12-21-16/1630	Samuel C. Macon			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Lin Bradley	12-23-16 9:45	Lin Bradley

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	AMEC Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of Tx Hwy, Ste, 335
City, State, Zip	Austin, Tx 78704
Email	Greg.Seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Comments

Contact Greg Seifert ~~with~~ for any questions

512-795-0360

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Samuel Macon
Sampler Phone	512-413-38[illegible]
Sample Origin State	Texas
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Analysis Requested: Schedule 2	See Attached	RUSH TAT	EL LAB ID (Laboratory Use Only)
1	SFL-MW2	12-22-16	0945	4	W	X	X			B16021644-018
2	SFL-MW3	12-22-16	1135	4	W	X	X			-019
3	SFL-MW4	12-22-16	1240	4	W	X	X			-020
4	EQBK 12-22-16/SCM	12-22-16	1010	4	W	X	X			-021
5										
6										
7										
8										
9										
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Samuel C. Macon	12-22-16/1400	Samuel C. Macon			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Cassi Bradley	12-23-16 9:45	Cassi Bradley

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

December 22, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17021678 Quote ID: B3997 - CCRR

Project Name: TMPA 6706150060

Energy Laboratories Inc Billings MT received the following 19 samples for Texas Municipal Power Agency on 2/24/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17021678-001	APMW-3	02/20/17 17:55	02/24/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B17021678-002	APMW-1D	02/21/17 9:52	02/24/17	Ground Water	Same As Above
B17021678-003	APMW-5	02/21/17 11:31	02/24/17	Ground Water	Same As Above
B17021678-004	APMW-4	02/21/17 12:40	02/24/17	Ground Water	Same As Above
B17021678-005	EQBK-BJG-22117	02/21/17 13:45	02/24/17	Ground Water	Same As Above
B17021678-006	SSP/APMW-1	02/21/17 14:52	02/24/17	Ground Water	Same As Above
B17021678-007	SSPMW-2	02/21/17 15:55	02/24/17	Ground Water	Same As Above
B17021678-008	SSPMW-4	02/21/17 17:01	02/24/17	Ground Water	Same As Above
B17021678-009	SSPMW-3	02/22/17 9:37	02/24/17	Ground Water	Same As Above
B17021678-011	SLFMW-6	02/22/17 14:27	02/24/17	Ground Water	Same As Above
B17021678-012	SFLMW-4	02/22/17 15:50	02/24/17	Ground Water	Same As Above
B17021678-013	SFLMW-2	02/22/17 17:09	02/24/17	Ground Water	Same As Above
B17021678-014	EQBK-BJG-22217	02/22/17 17:55	02/24/17	Ground Water	Same As Above
B17021678-015	SFLMW-5	02/23/17 9:02	02/24/17	Ground Water	Same As Above
B17021678-016	SFLMW-3	02/23/17 10:16	02/24/17	Ground Water	Same As Above
B17021678-017	EQBK-BJG-22317	02/23/17 11:20	02/24/17	Ground Water	Same As Above
B17021678-018	DUP-1	02/21/17 0:00	02/24/17	Ground Water	Same As Above
B17021678-019	DUP-2	02/22/17 0:00	02/24/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

ANALYTICAL SUMMARY REPORT

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA 6706150060
Work Order: B17021678

Revised Date: 12/22/17
Report Date: 03/14/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

The Total Dissolved Solids analysis for sample APMW-3 (B17021678-001) was performed outside the EPA recommended hold time.

We apologize for any inconvenience this may have caused.

For sample APMW-5 (B17021678-005) results for Major Ions, pH, TDS, Chloride, Sulfate, Fluoride and Barium were confirmed by re-analysis.

Revised Report 12/22/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-001
Client Sample ID: APMW-3

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/20/17 17:55
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	132	mg/L		1		E200.7	02/28/17 23:38 / rlh
Magnesium	20	mg/L		1		E200.7	02/28/17 23:38 / rlh
Potassium	12	mg/L		1		E200.7	02/28/17 23:38 / rlh
Sodium	226	mg/L		1		E200.7	02/28/17 23:38 / rlh
PHYSICAL PROPERTIES							
pH	5.4	s.u.	H	0.1		A4500-H B	02/24/17 14:16 / pjw
Solids, Total Dissolved TDS @ 180 C	1400	mg/L	DH	20		A2540 C	02/28/17 08:38 / rik
INORGANICS							
Chloride	146	mg/L		1		E300.0	03/01/17 01:50 / mej
Sulfate	720	mg/L	D	4		E300.0	03/01/17 01:50 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/28/17 11:09 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 02:11 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 02:11 / mas
Barium	0.02	mg/L		0.01		E200.7	02/28/17 23:38 / rlh
Beryllium	0.003	mg/L		0.001		E200.7	02/28/17 23:38 / rlh
Boron	3.61	mg/L		0.05		E200.7	02/28/17 23:38 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 02:11 / mas
Chromium	ND	mg/L		0.01		E200.7	02/28/17 23:38 / rlh
Cobalt	0.04	mg/L		0.02		E200.7	02/28/17 23:38 / rlh
Lead	ND	mg/L		0.01		E200.8	03/01/17 02:11 / mas
Lithium	0.06	mg/L		0.01		E200.7	02/28/17 23:38 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:01 / jh
Molybdenum	ND	mg/L		0.05		E200.7	02/28/17 23:38 / rlh
Selenium	ND	mg/L		0.01		E200.8	03/01/17 02:11 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 02:11 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.77	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.19	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	1.7	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 228 precision (±)	0.84	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 226 + Radium 228	2.4	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-002
Client Sample ID: APMW-1D

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17 09:52
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	77	mg/L		1		E200.7	02/28/17 23:42 / rlh
Magnesium	13	mg/L		1		E200.7	02/28/17 23:42 / rlh
Potassium	12	mg/L		1		E200.7	02/28/17 23:42 / rlh
Sodium	322	mg/L		1		E200.7	02/28/17 23:42 / rlh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	02/24/17 14:21 / pjw
Solids, Total Dissolved TDS @ 180 C	1310	mg/L	D	20		A2540 C	02/28/17 08:38 / rik
INORGANICS							
Chloride	228	mg/L		1		E300.0	03/01/17 02:07 / mej
Sulfate	543	mg/L	D	4		E300.0	03/01/17 02:07 / mej
Fluoride	0.7	mg/L		0.1		A4500-F C	02/28/17 11:12 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 02:24 / mas
Arsenic	0.01	mg/L		0.01		E200.8	03/01/17 02:24 / mas
Barium	0.01	mg/L		0.01		E200.7	02/28/17 23:42 / rlh
Beryllium	ND	mg/L		0.001		E200.7	02/28/17 23:42 / rlh
Boron	4.88	mg/L		0.05		E200.7	02/28/17 23:42 / rlh
Cadmium	ND	mg/L		0.005		E200.7	02/28/17 23:42 / rlh
Chromium	ND	mg/L		0.01		E200.7	02/28/17 23:42 / rlh
Cobalt	ND	mg/L		0.02		E200.7	02/28/17 23:42 / rlh
Lead	ND	mg/L		0.01		E200.8	03/01/17 02:24 / mas
Lithium	0.04	mg/L		0.01		E200.7	02/28/17 23:42 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:03 / jh
Molybdenum	ND	mg/L		0.05		E200.7	02/28/17 23:42 / rlh
Selenium	ND	mg/L		0.01		E200.8	03/01/17 02:24 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 02:24 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.37	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	0.21	pCi/L	U			RA-05	03/07/17 13:37 / eli-ca
Radium 228 precision (±)	0.94	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-003
Client Sample ID: APMW-5

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17 11:31
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	494	mg/L		1		E200.7	02/28/17 23:45 / rlh
Magnesium	110	mg/L		1		E200.7	02/28/17 23:45 / rlh
Potassium	40	mg/L		1		E200.7	02/28/17 23:45 / rlh
Sodium	631	mg/L	D	4		E200.7	02/28/17 23:45 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	02/24/17 14:23 / pjw
Solids, Total Dissolved TDS @ 180 C	4860	mg/L	D	40		A2540 C	02/28/17 08:38 / rik
INORGANICS							
Chloride	480	mg/L	D	6		E300.0	03/01/17 02:23 / mej
Sulfate	2880	mg/L	D	20		E300.0	03/01/17 02:23 / mej
Fluoride	1.2	mg/L		0.1		A4500-F C	02/28/17 11:21 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 02:28 / mas
Arsenic	0.01	mg/L		0.01		E200.8	03/01/17 02:28 / mas
Barium	0.04	mg/L		0.01		E200.7	02/28/17 23:45 / rlh
Beryllium	0.089	mg/L		0.001		E200.7	02/28/17 23:45 / rlh
Boron	3.32	mg/L		0.05		E200.7	02/28/17 23:45 / rlh
Cadmium	0.010	mg/L		0.005		E200.8	03/01/17 02:28 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 02:28 / mas
Cobalt	0.18	mg/L		0.02		E200.8	03/01/17 02:28 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 02:28 / mas
Lithium	0.53	mg/L	D	0.04		E200.7	02/28/17 23:45 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:05 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 02:28 / mas
Selenium	0.01	mg/L		0.01		E200.8	03/01/17 02:28 / mas
Thallium	0.002	mg/L		0.002		E200.8	03/01/17 02:28 / mas
RADIONUCLIDES - TOTAL							
Radium 226	1.5	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.40	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	0.31	pCi/L	U			RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	1.8	pCi/L	U			A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-004
Client Sample ID: APMW-4

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17 12:40
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	488	mg/L		1		E200.7	02/28/17 23:56 / rlh
Magnesium	112	mg/L		1		E200.7	02/28/17 23:56 / rlh
Potassium	45	mg/L		1		E200.7	02/28/17 23:56 / rlh
Sodium	490	mg/L	D	2		E200.7	02/28/17 23:56 / rlh
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	02/24/17 14:26 / pjw
Solids, Total Dissolved TDS @ 180 C	4130	mg/L	D	40		A2540 C	02/28/17 08:38 / rik
INORGANICS							
Chloride	503	mg/L	D	3		E300.0	03/01/17 02:40 / mej
Sulfate	2290	mg/L	D	9		E300.0	03/01/17 02:40 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/27/17 14:31 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 02:31 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 02:31 / mas
Barium	0.01	mg/L		0.01		E200.7	02/28/17 23:56 / rlh
Beryllium	ND	mg/L		0.001		E200.7	02/28/17 23:56 / rlh
Boron	1.89	mg/L		0.05		E200.7	02/28/17 23:56 / rlh
Cadmium	ND	mg/L		0.005		E200.7	02/28/17 23:56 / rlh
Chromium	ND	mg/L		0.01		E200.8	03/01/17 02:31 / mas
Cobalt	ND	mg/L		0.02		E200.8	03/01/17 02:31 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 02:31 / mas
Lithium	0.87	mg/L	D	0.02		E200.7	02/28/17 23:56 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:06 / jh
Molybdenum	ND	mg/L		0.05		E200.7	02/28/17 23:56 / rlh
Selenium	ND	mg/L		0.01		E200.8	03/01/17 02:31 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 02:31 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.92	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.21	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	0.29	pCi/L	U			RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	1.2	pCi/L	U			A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-005
Client Sample ID: EQBK-BJG-22117

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17 13:45
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	41	mg/L		1		E200.7	02/28/17 23:59 / rlh
Magnesium	13	mg/L		1		E200.7	02/28/17 23:59 / rlh
Potassium	3	mg/L		1		E200.7	02/28/17 23:59 / rlh
Sodium	25	mg/L		1		E200.7	02/28/17 23:59 / rlh
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	02/24/17 14:29 / pjw
Solids, Total Dissolved TDS @ 180 C	279	mg/L		10		A2540 C	02/28/17 08:39 / rik
INORGANICS							
Chloride	31	mg/L		1		E300.0	03/01/17 02:56 / mej
Sulfate	82	mg/L		1		E300.0	03/01/17 02:56 / mej
Fluoride	0.1	mg/L		0.1		A4500-F C	03/13/17 14:03 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 02:34 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 02:34 / mas
Barium	0.07	mg/L		0.01		E200.7	02/28/17 23:59 / rlh
Beryllium	ND	mg/L		0.001		E200.7	02/28/17 23:59 / rlh
Boron	ND	mg/L		0.05		E200.7	02/28/17 23:59 / rlh
Cadmium	ND	mg/L		0.005		E200.7	02/28/17 23:59 / rlh
Chromium	ND	mg/L		0.01		E200.7	02/28/17 23:59 / rlh
Cobalt	ND	mg/L		0.02		E200.7	02/28/17 23:59 / rlh
Lead	ND	mg/L		0.01		E200.8	03/01/17 02:34 / mas
Lithium	ND	mg/L		0.01		E200.7	02/28/17 23:59 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:08 / jh
Molybdenum	ND	mg/L		0.05		E200.7	02/28/17 23:59 / rlh
Selenium	ND	mg/L		0.01		E200.8	03/01/17 02:34 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 02:34 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.54	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	0.13	pCi/L	U			RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-006
Client Sample ID: SSP/APMW-1

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17 14:52
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	617	mg/L		1		E200.7	03/01/17 00:03 / rlh
Magnesium	138	mg/L		1		E200.7	03/01/17 00:03 / rlh
Potassium	50	mg/L		1		E200.7	03/01/17 00:03 / rlh
Sodium	1180	mg/L	D	4		E200.7	03/01/17 00:03 / rlh
PHYSICAL PROPERTIES							
pH	6.2	s.u.	H	0.1		A4500-H B	02/24/17 14:31 / pjw
Solids, Total Dissolved TDS @ 180 C	6520	mg/L	D	100		A2540 C	02/28/17 08:39 / rik
INORGANICS							
Chloride	1530	mg/L	D	6		E300.0	03/01/17 03:13 / mej
Sulfate	2900	mg/L	D	20		E300.0	03/01/17 03:13 / mej
Fluoride	0.1	mg/L		0.1		A4500-F C	02/27/17 14:42 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 02:38 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 02:38 / mas
Barium	0.05	mg/L		0.01		E200.7	03/01/17 00:03 / rlh
Beryllium	ND	mg/L		0.001		E200.8	03/01/17 02:38 / mas
Boron	0.77	mg/L		0.05		E200.7	03/01/17 00:03 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 02:38 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 02:38 / mas
Cobalt	ND	mg/L		0.02		E200.8	03/01/17 02:38 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 02:38 / mas
Lithium	1.21	mg/L	D	0.04		E200.7	03/01/17 00:03 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:10 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 02:38 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 02:38 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 02:38 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.63	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.19	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	-0.05	pCi/L	U			RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-007
Client Sample ID: SSPMW-2

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17 15:55
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	818	mg/L		1		E200.7	03/01/17 00:06 / rlh
Magnesium	190	mg/L		1		E200.7	03/01/17 00:06 / rlh
Potassium	58	mg/L		1		E200.7	03/01/17 00:06 / rlh
Sodium	1080	mg/L	D	4		E200.7	03/01/17 00:06 / rlh
PHYSICAL PROPERTIES							
pH	5.4	s.u.	H	0.1		A4500-H B	02/24/17 14:34 / pjw
Solids, Total Dissolved TDS @ 180 C	6990	mg/L	D	100		A2540 C	02/28/17 08:39 / rik
INORGANICS							
Chloride	2550	mg/L	D	6		E300.0	03/01/17 04:35 / mej
Sulfate	2080	mg/L	D	20		E300.0	03/01/17 04:35 / mej
Fluoride	0.2	mg/L		0.1		A4500-F C	02/27/17 14:47 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 02:41 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 02:41 / mas
Barium	0.03	mg/L		0.01		E200.7	03/01/17 00:06 / rlh
Beryllium	0.026	mg/L		0.001		E200.7	03/01/17 00:06 / rlh
Boron	0.47	mg/L		0.05		E200.7	03/01/17 00:06 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 02:41 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 02:41 / mas
Cobalt	0.06	mg/L		0.02		E200.8	03/01/17 02:41 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 02:41 / mas
Lithium	0.86	mg/L	D	0.04		E200.7	03/01/17 00:06 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:12 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 02:41 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 02:41 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 02:41 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.84	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.19	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	14	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	2.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	14.6	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	2.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-008
Client Sample ID: SSPMW-4

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17 17:01
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	390	mg/L		1		E200.7	03/01/17 00:17 / rlh
Magnesium	80	mg/L		1		E200.7	03/01/17 00:17 / rlh
Potassium	53	mg/L		1		E200.7	03/01/17 00:17 / rlh
Sodium	678	mg/L	D	4		E200.7	03/01/17 00:17 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	02/24/17 14:36 / pjw
Solids, Total Dissolved TDS @ 180 C	3890	mg/L	D	40		A2540 C	02/28/17 08:39 / rik
INORGANICS							
Chloride	1180	mg/L	D	6		E300.0	03/01/17 04:51 / mej
Sulfate	1240	mg/L	D	20		E300.0	03/01/17 04:51 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/27/17 14:50 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 20:45 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 20:45 / mas
Barium	0.03	mg/L		0.01		E200.7	03/01/17 00:17 / rlh
Beryllium	ND	mg/L		0.001		E200.8	03/01/17 20:45 / mas
Boron	1.24	mg/L		0.05		E200.7	03/01/17 00:17 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 20:45 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 20:45 / mas
Cobalt	ND	mg/L		0.02		E200.8	03/01/17 20:45 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 20:45 / mas
Lithium	0.87	mg/L	D	0.04		E200.7	03/01/17 00:17 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:21 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 20:45 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 20:45 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 20:45 / mas
RADIONUCLIDES - TOTAL							
Radium 226	1.6	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	0.39	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	1.9	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	3.5	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-009
Client Sample ID: SSPMW-3

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/22/17 09:37
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	694	mg/L		1		E200.7	03/01/17 00:42 / rlh
Magnesium	173	mg/L		1		E200.7	03/01/17 00:42 / rlh
Potassium	48	mg/L		1		E200.7	03/01/17 00:42 / rlh
Sodium	1060	mg/L	D	4		E200.7	03/01/17 00:42 / rlh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	02/24/17 14:39 / pjw
Solids, Total Dissolved TDS @ 180 C	6450	mg/L	D	100		A2540 C	02/28/17 08:39 / rik
INORGANICS							
Chloride	1830	mg/L	D	6		E300.0	03/01/17 05:08 / mej
Sulfate	2520	mg/L	D	20		E300.0	03/01/17 05:08 / mej
Fluoride	0.8	mg/L		0.1		A4500-F C	02/27/17 14:57 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 20:49 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 20:49 / mas
Barium	0.03	mg/L		0.01		E200.7	03/01/17 00:42 / rlh
Beryllium	0.121	mg/L		0.001		E200.8	03/01/17 20:49 / mas
Boron	2.68	mg/L		0.05		E200.7	03/01/17 00:42 / rlh
Cadmium	0.067	mg/L		0.005		E200.8	03/01/17 20:49 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 20:49 / mas
Cobalt	0.62	mg/L		0.02		E200.8	03/01/17 20:49 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 20:49 / mas
Lithium	0.66	mg/L	D	0.04		E200.7	03/01/17 00:42 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:30 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 20:49 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 20:49 / mas
Thallium	0.010	mg/L		0.002		E200.8	03/01/17 20:49 / mas
RADIONUCLIDES - TOTAL							
Radium 226	7.9	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 precision (±)	1.6	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 09:06 / eli-ca
Radium 228	20	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	3.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	27.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	4.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-011
Client Sample ID: SLFMW-6

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/22/17 14:27
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	852	mg/L	D	2		E200.7	03/01/17 00:49 / rlh
Magnesium	228	mg/L		1		E200.7	03/01/17 00:49 / rlh
Potassium	67	mg/L		1		E200.7	03/01/17 00:49 / rlh
Sodium	1570	mg/L	D	8		E200.7	03/01/17 00:49 / rlh
PHYSICAL PROPERTIES							
pH	4.0	s.u.	H	0.1		A4500-H B	02/24/17 14:44 / pjw
Solids, Total Dissolved TDS @ 180 C	8790	mg/L	D	100		A2540 C	02/24/17 10:38 / rik
INORGANICS							
Chloride	3570	mg/L	D	10		E300.0	03/01/17 05:41 / mej
Sulfate	2260	mg/L	D	40		E300.0	03/01/17 05:41 / mej
Fluoride	0.9	mg/L		0.1		A4500-F C	02/27/17 15:20 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 20:55 / mas
Arsenic	0.01	mg/L		0.01		E200.8	03/01/17 20:55 / mas
Barium	0.04	mg/L		0.01		E200.7	03/01/17 00:49 / rlh
Beryllium	0.056	mg/L		0.001		E200.8	03/01/17 20:55 / mas
Boron	0.24	mg/L	D	0.07		E200.7	03/01/17 00:49 / rlh
Cadmium	0.013	mg/L		0.005		E200.8	03/01/17 20:55 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 20:55 / mas
Cobalt	0.13	mg/L		0.02		E200.8	03/01/17 20:55 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 20:55 / mas
Lithium	0.74	mg/L	D	0.09		E200.7	03/01/17 00:49 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:34 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 20:55 / mas
Selenium	0.01	mg/L		0.01		E200.8	03/01/17 20:55 / mas
Thallium	0.004	mg/L		0.002		E200.8	03/01/17 20:55 / mas
RADIONUCLIDES - TOTAL							
Radium 226	4.5	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.92	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	2.3	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 228 precision (±)	0.93	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	03/07/17 13:37 / eli-ca
Radium 226 + Radium 228	6.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-012
Client Sample ID: SFLMW-4

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/22/17 15:50
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	721	mg/L		1		E200.7	03/01/17 00:52 / rlh
Magnesium	110	mg/L		1		E200.7	03/01/17 00:52 / rlh
Potassium	50	mg/L		1		E200.7	03/01/17 00:52 / rlh
Sodium	957	mg/L	D	4		E200.7	03/01/17 00:52 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	02/24/17 14:49 / pjw
Solids, Total Dissolved TDS @ 180 C	6000	mg/L	D	100		A2540 C	02/24/17 10:38 / rik
INORGANICS							
Chloride	1730	mg/L	D	6		E300.0	03/01/17 05:57 / mej
Sulfate	2230	mg/L	D	20		E300.0	03/01/17 05:57 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/27/17 15:23 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 20:59 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 20:59 / mas
Barium	0.02	mg/L		0.01		E200.7	03/01/17 00:52 / rlh
Beryllium	ND	mg/L		0.001		E200.8	03/01/17 20:59 / mas
Boron	0.55	mg/L		0.05		E200.7	03/01/17 00:52 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 20:59 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 20:59 / mas
Cobalt	ND	mg/L		0.02		E200.8	03/01/17 20:59 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 20:59 / mas
Lithium	0.45	mg/L	D	0.04		E200.7	03/01/17 00:52 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:36 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 20:59 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 20:59 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 20:59 / mas
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.29	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	2.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	3.2	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-013
Client Sample ID: SFLMW-2

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/22/17 17:09
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	578	mg/L		1		E200.7	03/01/17 00:56 / rlh
Magnesium	83	mg/L		1		E200.7	03/01/17 00:56 / rlh
Potassium	39	mg/L		1		E200.7	03/01/17 00:56 / rlh
Sodium	1460	mg/L	D	4		E200.7	03/01/17 00:56 / rlh
PHYSICAL PROPERTIES							
pH	6.8	s.u.	H	0.1		A4500-H B	02/24/17 14:52 / pjw
Solids, Total Dissolved TDS @ 180 C	6630	mg/L	D	100		A2540 C	02/24/17 10:38 / rik
INORGANICS							
Chloride	2480	mg/L	D	6		E300.0	03/01/17 06:14 / mej
Sulfate	1740	mg/L	D	20		E300.0	03/01/17 06:14 / mej
Fluoride	0.4	mg/L		0.1		A4500-F C	02/27/17 15:25 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 21:02 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 21:02 / mas
Barium	0.02	mg/L		0.01		E200.7	03/01/17 00:56 / rlh
Beryllium	ND	mg/L		0.001		E200.8	03/01/17 21:02 / mas
Boron	0.55	mg/L		0.05		E200.7	03/01/17 00:56 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 21:02 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 21:02 / mas
Cobalt	ND	mg/L		0.02		E200.8	03/01/17 21:02 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 21:02 / mas
Lithium	0.49	mg/L	D	0.04		E200.7	03/01/17 00:56 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:37 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 21:02 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 21:02 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 21:02 / mas
RADIONUCLIDES - TOTAL							
Radium 226	2.6	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.56	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	4.5	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	7.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-014
Client Sample ID: EQBK-BJG-22217

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/22/17 17:55
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	03/01/17 01:00 / rlh
Magnesium	ND	mg/L		1		E200.7	03/01/17 01:00 / rlh
Potassium	ND	mg/L		1		E200.7	03/01/17 01:00 / rlh
Sodium	ND	mg/L		1		E200.7	03/01/17 01:00 / rlh
PHYSICAL PROPERTIES							
pH	6.4	s.u.	H	0.1		A4500-H B	02/24/17 14:54 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	02/24/17 10:39 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	03/01/17 06:30 / mej
Sulfate	ND	mg/L		1		E300.0	03/01/17 06:30 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/27/17 15:45 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 21:05 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 21:05 / mas
Barium	ND	mg/L		0.01		E200.7	03/01/17 01:00 / rlh
Beryllium	ND	mg/L		0.001		E200.7	03/01/17 01:00 / rlh
Boron	ND	mg/L		0.05		E200.7	03/01/17 01:00 / rlh
Cadmium	ND	mg/L		0.005		E200.7	03/01/17 01:00 / rlh
Chromium	ND	mg/L		0.01		E200.7	03/01/17 01:00 / rlh
Cobalt	ND	mg/L		0.02		E200.7	03/01/17 01:00 / rlh
Lead	ND	mg/L		0.01		E200.8	03/01/17 21:05 / mas
Lithium	ND	mg/L		0.01		E200.7	03/01/17 01:00 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:39 / jh
Molybdenum	ND	mg/L		0.05		E200.7	03/01/17 01:00 / rlh
Selenium	ND	mg/L		0.01		E200.8	03/01/17 21:05 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 21:05 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.12	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	0.13	pCi/L	U			RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	0.2	pCi/L	U			A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-015
Client Sample ID: SFLMW-5

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/23/17 09:02
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	755	mg/L	D	2		E200.7	03/01/17 01:03 / rlh
Magnesium	146	mg/L		1		E200.7	03/01/17 01:03 / rlh
Potassium	51	mg/L		1		E200.7	03/01/17 01:03 / rlh
Sodium	1490	mg/L	D	8		E200.7	03/01/17 01:03 / rlh
PHYSICAL PROPERTIES							
pH	5.1	s.u.	H	0.1		A4500-H B	02/24/17 14:57 / pjw
Solids, Total Dissolved TDS @ 180 C	7530	mg/L	D	100		A2540 C	02/24/17 10:39 / rik
INORGANICS							
Chloride	3020	mg/L	D	10		E300.0	03/01/17 06:47 / mej
Sulfate	2120	mg/L	D	40		E300.0	03/01/17 06:47 / mej
Fluoride	0.2	mg/L		0.1		A4500-F C	02/27/17 15:56 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 21:19 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 21:19 / mas
Barium	0.02	mg/L		0.01		E200.7	03/01/17 01:03 / rlh
Beryllium	0.010	mg/L		0.001		E200.8	03/01/17 21:19 / mas
Boron	2.98	mg/L	D	0.07		E200.7	03/01/17 01:03 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 21:19 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 21:19 / mas
Cobalt	0.05	mg/L		0.02		E200.8	03/01/17 21:19 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 21:19 / mas
Lithium	0.72	mg/L	D	0.09		E200.7	03/01/17 01:03 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:41 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 21:19 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 21:19 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 21:19 / mas
RADIONUCLIDES - TOTAL							
Radium 226	5.5	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	1.1	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	6.5	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.7	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	11.9	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	2.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-016
Client Sample ID: SFLMW-3

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/23/17 10:16
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	628	mg/L		1		E200.7	03/01/17 01:07 / rlh
Magnesium	116	mg/L		1		E200.7	03/01/17 01:07 / rlh
Potassium	49	mg/L		1		E200.7	03/01/17 01:07 / rlh
Sodium	815	mg/L	D	4		E200.7	03/01/17 01:07 / rlh
PHYSICAL PROPERTIES							
pH	3.8	s.u.	H	0.1		A4500-H B	02/24/17 15:00 / pjw
Solids, Total Dissolved TDS @ 180 C	5440	mg/L	D	100		A2540 C	02/24/17 10:39 / rik
INORGANICS							
Chloride	1440	mg/L	D	6		E300.0	03/01/17 07:03 / mej
Sulfate	2280	mg/L	D	20		E300.0	03/01/17 07:03 / mej
Fluoride	0.6	mg/L		0.1		A4500-F C	02/27/17 16:04 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 21:22 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 21:22 / mas
Barium	0.02	mg/L		0.01		E200.7	03/01/17 01:07 / rlh
Beryllium	0.040	mg/L		0.001		E200.8	03/01/17 21:22 / mas
Boron	2.54	mg/L		0.05		E200.7	03/01/17 01:07 / rlh
Cadmium	0.008	mg/L		0.005		E200.8	03/01/17 21:22 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 21:22 / mas
Cobalt	0.07	mg/L		0.02		E200.8	03/01/17 21:22 / mas
Lead	0.03	mg/L		0.01		E200.8	03/01/17 21:22 / mas
Lithium	0.35	mg/L	D	0.04		E200.7	03/01/17 01:07 / rlh
Mercury	0.002	mg/L		0.001		E245.1	02/28/17 13:09 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 21:22 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 21:22 / mas
Thallium	0.006	mg/L		0.002		E200.8	03/01/17 21:22 / mas
RADIONUCLIDES - TOTAL							
Radium 226	3.1	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.67	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	4.5	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	7.6	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.7	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-017
Client Sample ID: EQBK-BJG-22317

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/23/17 11:20
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	03/01/17 01:10 / rlh
Magnesium	ND	mg/L		1		E200.7	03/01/17 01:10 / rlh
Potassium	ND	mg/L		1		E200.7	03/01/17 01:10 / rlh
Sodium	ND	mg/L		1		E200.7	03/01/17 01:10 / rlh
PHYSICAL PROPERTIES							
pH	6.0	s.u.	H	0.1		A4500-H B	02/24/17 15:02 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	02/24/17 10:39 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	03/01/17 08:26 / mej
Sulfate	ND	mg/L		1		E300.0	03/01/17 08:26 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/27/17 16:13 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 21:26 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 21:26 / mas
Barium	ND	mg/L		0.01		E200.7	03/01/17 01:10 / rlh
Beryllium	ND	mg/L		0.001		E200.7	03/01/17 01:10 / rlh
Boron	ND	mg/L		0.05		E200.7	03/01/17 01:10 / rlh
Cadmium	ND	mg/L		0.005		E200.7	03/01/17 01:10 / rlh
Chromium	ND	mg/L		0.01		E200.7	03/01/17 01:10 / rlh
Cobalt	ND	mg/L		0.02		E200.7	03/01/17 01:10 / rlh
Lead	ND	mg/L		0.01		E200.8	03/01/17 21:26 / mas
Lithium	ND	mg/L		0.01		E200.7	03/01/17 01:10 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:45 / jh
Molybdenum	ND	mg/L		0.05		E200.7	03/01/17 01:10 / rlh
Selenium	ND	mg/L		0.01		E200.8	03/01/17 21:26 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 21:26 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.12	pCi/L	U			E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.12	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	0.46	pCi/L	U			RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-018
Client Sample ID: DUP-1

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/21/17
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	409	mg/L		1		E200.7	03/01/17 01:46 / rlh
Magnesium	85	mg/L		1		E200.7	03/01/17 01:46 / rlh
Potassium	56	mg/L		1		E200.7	03/01/17 01:46 / rlh
Sodium	723	mg/L	D	4		E200.7	03/01/17 01:46 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	02/24/17 15:05 / pjw
Solids, Total Dissolved TDS @ 180 C	3820	mg/L	D	40		A2540 C	02/24/17 10:39 / rik
INORGANICS							
Chloride	1170	mg/L	D	6		E300.0	03/01/17 08:42 / mej
Sulfate	1230	mg/L	D	20		E300.0	03/01/17 08:42 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/27/17 16:17 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 21:29 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 21:29 / mas
Barium	0.03	mg/L		0.01		E200.7	03/01/17 01:46 / rlh
Beryllium	ND	mg/L		0.001		E200.8	03/01/17 21:29 / mas
Boron	1.30	mg/L		0.05		E200.7	03/01/17 01:46 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 21:29 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 21:29 / mas
Cobalt	ND	mg/L		0.02		E200.8	03/01/17 21:29 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 21:29 / mas
Lithium	0.95	mg/L	D	0.04		E200.7	03/01/17 01:46 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:46 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 21:29 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 21:29 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 21:29 / mas
RADIONUCLIDES - TOTAL							
Radium 226	1.6	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.41	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	1.9	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	3.5	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17021678-019
Client Sample ID: DUP-2

Revised Date: 12/22/17
Report Date: 03/14/17
Collection Date: 02/22/17
DateReceived: 02/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	785	mg/L		1		E200.7	03/01/17 02:03 / rlh
Magnesium	120	mg/L		1		E200.7	03/01/17 02:03 / rlh
Potassium	56	mg/L		1		E200.7	03/01/17 02:03 / rlh
Sodium	1070	mg/L	D	4		E200.7	03/01/17 02:03 / rlh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	02/24/17 15:07 / pjw
Solids, Total Dissolved TDS @ 180 C	6050	mg/L	D	100		A2540 C	02/24/17 10:40 / rik
INORGANICS							
Chloride	1730	mg/L	D	6		E300.0	03/01/17 08:59 / mej
Sulfate	2200	mg/L	D	20		E300.0	03/01/17 08:59 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	02/27/17 16:20 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	03/01/17 21:32 / mas
Arsenic	ND	mg/L		0.01		E200.8	03/01/17 21:32 / mas
Barium	0.02	mg/L		0.01		E200.7	03/01/17 02:03 / rlh
Beryllium	ND	mg/L		0.001		E200.8	03/01/17 21:32 / mas
Boron	0.61	mg/L		0.05		E200.7	03/01/17 02:03 / rlh
Cadmium	ND	mg/L		0.005		E200.8	03/01/17 21:32 / mas
Chromium	ND	mg/L		0.01		E200.8	03/01/17 21:32 / mas
Cobalt	ND	mg/L		0.02		E200.8	03/01/17 21:32 / mas
Lead	ND	mg/L		0.01		E200.8	03/01/17 21:32 / mas
Lithium	0.53	mg/L	D	0.04		E200.7	03/01/17 02:03 / rlh
Mercury	ND	mg/L		0.001		E245.1	02/27/17 16:52 / jh
Molybdenum	ND	mg/L		0.05		E200.8	03/01/17 21:32 / mas
Selenium	ND	mg/L		0.01		E200.8	03/01/17 21:32 / mas
Thallium	ND	mg/L		0.002		E200.8	03/01/17 21:32 / mas
RADIONUCLIDES - TOTAL							
Radium 226	0.99	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	03/13/17 10:39 / eli-ca
Radium 228	1.2	pCi/L	U			RA-05	03/07/17 15:12 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	03/07/17 15:12 / eli-ca
Radium 226 + Radium 228	2.2	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	03/13/17 11:18 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170228A	
Lab ID: **ICV**	12	Continuing Calibration Verification Standard							02/28/17 09:57	
Barium		2.49	mg/L	0.10	99	95	105			
Beryllium		1.21	mg/L	0.010	97	95	105			
Boron		2.42	mg/L	0.10	97	95	105			
Cadmium		2.41	mg/L	0.010	97	95	105			
Calcium		25.7	mg/L	1.0	103	95	105			
Chromium		2.41	mg/L	0.050	96	95	105			
Cobalt		2.40	mg/L	0.020	96	95	105			
Lithium		1.31	mg/L	0.10	105	95	105			
Magnesium		25.7	mg/L	1.0	103	95	105			
Molybdenum		2.38	mg/L	0.10	95	95	105			
Potassium		25.9	mg/L	1.0	103	95	105			
Sodium		26.0	mg/L	1.0	104	95	105			
Method: **E200.7**									Batch: 106999	
Lab ID: **MB-106999**	12	Method Blank				Run: ICP203-B_170228A			02/28/17 22:01	
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		0.04	mg/L	0.03						
Lab ID: **LCS-106999**	12	Laboratory Control Sample				Run: ICP203-B_170228A			02/28/17 22:05	
Barium		0.494	mg/L	0.10	99	85	115			
Beryllium		0.249	mg/L	0.010	99	85	115			
Boron		0.479	mg/L	0.10	96	85	115			
Cadmium		0.245	mg/L	0.010	98	85	115			
Calcium		25.1	mg/L	1.0	100	85	115			
Chromium		0.475	mg/L	0.050	95	85	115			
Cobalt		0.492	mg/L	0.050	98	85	115			
Lithium		0.499	mg/L	0.10	100	85	115			
Magnesium		24.8	mg/L	1.0	99	85	115			
Molybdenum		0.469	mg/L	0.10	94	85	115			
Potassium		24.8	mg/L	1.0	99	85	115			
Sodium		24.6	mg/L	1.0	98	85	115			
Lab ID: **B17021674-011BMS3**	12	Sample Matrix Spike				Run: ICP203-B_170228A			02/28/17 23:24	
Barium		0.510	mg/L	0.050	100	70	130			
Beryllium		0.251	mg/L	0.0010	100	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 106999	
Lab ID: B17021674-011BMS3	12	Sample Matrix Spike				Run: ICP203-B_170228A			02/28/17 23:24	
Boron		1.85	mg/L	0.050	111	70	130			
Cadmium		0.242	mg/L	0.0050	97	70	130			
Calcium		330	mg/L	1.0		70	130			A
Chromium		0.470	mg/L	0.010	94	70	130			
Cobalt		0.488	mg/L	0.026	98	70	130			
Lithium		0.618	mg/L	0.10	102	70	130			
Magnesium		295	mg/L	1.0		70	130			A
Molybdenum		0.468	mg/L	0.036	94	70	130			
Potassium		38.7	mg/L	1.0	103	70	130			
Sodium		364	mg/L	2.1		70	130			A
Lab ID: B17021674-011BMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170228A			02/28/17 23:27	
Barium		0.492	mg/L	0.050	97	70	130	3.5	20	
Beryllium		0.245	mg/L	0.0010	98	70	130	2.4	20	
Boron		1.79	mg/L	0.050	99	70	130	3.1	20	
Cadmium		0.243	mg/L	0.0050	97	70	130	0.4	20	
Calcium		324	mg/L	1.0		70	130	1.7	20	A
Chromium		0.475	mg/L	0.010	95	70	130	1.0	20	
Cobalt		0.488	mg/L	0.026	98	70	130	0.0	20	
Lithium		0.596	mg/L	0.10	98	70	130	3.6	20	
Magnesium		291	mg/L	1.0		70	130	1.3	20	A
Molybdenum		0.447	mg/L	0.036	89	70	130	4.5	20	
Potassium		37.8	mg/L	1.0	100	70	130	2.4	20	
Sodium		356	mg/L	2.1		70	130	2.0	20	A
Method: E200.7									Batch: 107000	
Lab ID: MB-107000	12	Method Blank				Run: ICP203-B_170228A			03/01/17 00:10	
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		0.005	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		0.08	mg/L	0.07						
Sodium		0.04	mg/L	0.03						
Lab ID: LCS-107000	12	Laboratory Control Sample				Run: ICP203-B_170228A			03/01/17 00:14	
Barium		0.471	mg/L	0.10	94	85	115			
Beryllium		0.238	mg/L	0.010	95	85	115			
Boron		0.458	mg/L	0.10	92	85	115			
Cadmium		0.239	mg/L	0.010	96	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 107000	
Lab ID: LCS-107000	12	Laboratory Control Sample				Run: ICP203-B_170228A			03/01/17 00:14	
Calcium		24.4	mg/L	1.0	97	85	115			
Chromium		0.456	mg/L	0.050	91	85	115			
Cobalt		0.477	mg/L	0.050	95	85	115			
Lithium		0.471	mg/L	0.10	93	85	115			
Magnesium		24.3	mg/L	1.0	97	85	115			
Molybdenum		0.452	mg/L	0.10	90	85	115			
Potassium		23.9	mg/L	1.0	95	85	115			
Sodium		23.9	mg/L	1.0	96	85	115			
Lab ID: B17021678-008BMS3	12	Sample Matrix Spike				Run: ICP203-B_170228A			03/01/17 00:28	
Barium		0.536	mg/L	0.050	101	70	130			
Beryllium		0.255	mg/L	0.0014	102	70	130			
Boron		1.84	mg/L	0.050	122	70	130			
Cadmium		0.250	mg/L	0.0099	100	70	130			
Calcium		428	mg/L	1.0		70	130			A
Chromium		0.495	mg/L	0.020	99	70	130			
Cobalt		0.500	mg/L	0.052	100	70	130			
Lithium		1.42	mg/L	0.10	109	70	130			
Magnesium		108	mg/L	1.0	110	70	130			
Molybdenum		0.467	mg/L	0.071	93	70	130			
Potassium		79.4	mg/L	1.0	107	70	130			
Sodium		735	mg/L	4.2		70	130			A
Lab ID: B17021678-008BMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170228A			03/01/17 00:38	
Barium		0.513	mg/L	0.050	96	70	130	4.3	20	
Beryllium		0.247	mg/L	0.0014	99	70	130	3.5	20	
Boron		1.74	mg/L	0.050	100	70	130	6.0	20	
Cadmium		0.254	mg/L	0.0099	101	70	130	1.6	20	
Calcium		419	mg/L	1.0		70	130	2.1	20	A
Chromium		0.481	mg/L	0.020	96	70	130	3.0	20	
Cobalt		0.487	mg/L	0.052	97	70	130	2.7	20	
Lithium		1.36	mg/L	0.10	98	70	130	3.9	20	
Magnesium		105	mg/L	1.0	100	70	130	2.3	20	
Molybdenum		0.437	mg/L	0.071	87	70	130	6.6	20	
Potassium		76.8	mg/L	1.0	97	70	130	3.3	20	
Sodium		706	mg/L	4.2		70	130	4.1	20	A
Lab ID: B17021678-018BMS3	12	Sample Matrix Spike				Run: ICP203-B_170228A			03/01/17 01:56	
Barium		0.527	mg/L	0.050	99	70	130			
Beryllium		0.254	mg/L	0.0014	102	70	130			
Boron		1.83	mg/L	0.050	105	70	130			
Cadmium		0.248	mg/L	0.0099	99	70	130			
Calcium		433	mg/L	1.0		70	130			A
Chromium		0.515	mg/L	0.020	103	70	130			
Cobalt		0.491	mg/L	0.052	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency
Report Date: 03/14/17

Project: TMPA 6706150060
Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 107000	
Lab ID: B17021678-018BMS3	12	Sample Matrix Spike				Run: ICP203-B_170228A			03/01/17 01:56	
Lithium		1.44	mg/L	0.10	99	70	130			
Magnesium		109	mg/L	1.0	98	70	130			
Molybdenum		0.513	mg/L	0.071	103	70	130			
Potassium		79.8	mg/L	1.0	96	70	130			
Sodium		742	mg/L	4.2		70	130			A
Lab ID: B17021678-018BMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170228A			03/01/17 02:00	
Barium		0.529	mg/L	0.050	100	70	130	0.4	20	
Beryllium		0.253	mg/L	0.0014	101	70	130	0.5	20	
Boron		1.80	mg/L	0.050	100	70	130	1.5	20	
Cadmium		0.246	mg/L	0.0099	98	70	130	1.1	20	
Calcium		432	mg/L	1.0		70	130	0.2	20	A
Chromium		0.506	mg/L	0.020	101	70	130	1.9	20	
Cobalt		0.497	mg/L	0.052	99	70	130	1.1	20	
Lithium		1.44	mg/L	0.10	99	70	130	0.1	20	
Magnesium		109	mg/L	1.0	95	70	130	0.6	20	
Molybdenum		0.526	mg/L	0.071	105	70	130	2.6	20	
Potassium		80.0	mg/L	1.0	97	70	130	0.3	20	
Sodium		743	mg/L	4.2		70	130	0.2	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170228A	
Lab ID: QCS	10	Initial Calibration Verification Standard							02/28/17 09:40	
Antimony		0.0512	mg/L	0.050	102	90	110			
Arsenic		0.0521	mg/L	0.0050	104	90	110			
Beryllium		0.0256	mg/L	0.0010	102	90	110			
Cadmium		0.0257	mg/L	0.0010	103	90	110			
Chromium		0.0511	mg/L	0.010	102	90	110			
Cobalt		0.0534	mg/L	0.010	107	90	110			
Lead		0.0504	mg/L	0.010	101	90	110			
Molybdenum		0.0507	mg/L	0.0050	101	90	110			
Selenium		0.0514	mg/L	0.0050	103	90	110			
Thallium		0.0509	mg/L	0.10	102	90	110			
Method: E200.8										Batch: 106999
Lab ID: MB-106999	10	Method Blank				Run: ICPMS206-B_170228A			03/01/17 01:14	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		0.00005	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		0.00006	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	7E-06						
Lab ID: LCS-106999	10	Laboratory Control Sample				Run: ICPMS206-B_170228A			03/01/17 02:45	
Antimony		0.477	mg/L	0.0050	95	85	115			
Arsenic		0.477	mg/L	0.0010	95	85	115			
Beryllium		0.235	mg/L	0.0010	94	85	115			
Cadmium		0.247	mg/L	0.0010	99	85	115			
Chromium		0.478	mg/L	0.0010	96	85	115			
Cobalt		0.488	mg/L	0.0010	98	85	115			
Lead		0.471	mg/L	0.0010	94	85	115			
Molybdenum		0.468	mg/L	0.0050	94	85	115			
Selenium		0.467	mg/L	0.0050	93	85	115			
Thallium		0.496	mg/L	0.0010	99	85	115			
Lab ID: B17021674-001BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_170228A			03/01/17 02:48	
Antimony		0.487	mg/L	0.0010	97	70	130			
Arsenic		0.492	mg/L	0.0010	99	70	130			
Beryllium		0.242	mg/L	0.0010	97	70	130			
Cadmium		0.248	mg/L	0.0010	99	70	130			
Chromium		0.483	mg/L	0.0050	97	70	130			
Cobalt		0.493	mg/L	0.0050	99	70	130			
Lead		0.466	mg/L	0.0010	93	70	130			
Molybdenum		0.481	mg/L	0.0010	96	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 106999
Lab ID: B17021674-001BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_170228A				03/01/17 02:48
Selenium		0.470	mg/L	0.0018	94	70	130			
Thallium		0.467	mg/L	0.00050	93	70	130			
Lab ID: B17021674-001BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170228A				03/01/17 02:51
Antimony		0.510	mg/L	0.0010	102	70	130	4.5	20	
Arsenic		0.516	mg/L	0.0010	103	70	130	4.8	20	
Beryllium		0.247	mg/L	0.0010	99	70	130	2.1	20	
Cadmium		0.254	mg/L	0.0010	102	70	130	2.4	20	
Chromium		0.504	mg/L	0.0050	101	70	130	4.3	20	
Cobalt		0.511	mg/L	0.0050	102	70	130	3.6	20	
Lead		0.478	mg/L	0.0010	96	70	130	2.5	20	
Molybdenum		0.501	mg/L	0.0010	100	70	130	4.1	20	
Selenium		0.497	mg/L	0.0018	99	70	130	5.5	20	
Thallium		0.477	mg/L	0.00050	95	70	130	2.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170301A	
Lab ID: QCS	10	Initial Calibration Verification Standard								03/01/17 20:22
Antimony		0.0518	mg/L	0.050	104	90	110			
Arsenic		0.0513	mg/L	0.0050	103	90	110			
Beryllium		0.0261	mg/L	0.0010	104	90	110			
Cadmium		0.0251	mg/L	0.0010	101	90	110			
Chromium		0.0525	mg/L	0.010	105	90	110			
Cobalt		0.0534	mg/L	0.010	107	90	110			
Lead		0.0496	mg/L	0.010	99	90	110			
Molybdenum		0.0502	mg/L	0.0050	100	90	110			
Selenium		0.0503	mg/L	0.0050	101	90	110			
Thallium		0.0506	mg/L	0.10	101	90	110			
Method: E200.8										Batch: 107000
Lab ID: MB-107000	10	Method Blank				Run: ICPMS206-B_170301A				03/01/17 20:42
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	7E-06						
Lab ID: LCS-107000	10	Laboratory Control Sample				Run: ICPMS206-B_170301A				03/01/17 22:13
Antimony		0.526	mg/L	0.0050	105	85	115			
Arsenic		0.501	mg/L	0.0010	100	85	115			
Beryllium		0.254	mg/L	0.0010	101	85	115			
Cadmium		0.253	mg/L	0.0010	101	85	115			
Chromium		0.486	mg/L	0.0010	97	85	115			
Cobalt		0.540	mg/L	0.0010	108	85	115			
Lead		0.494	mg/L	0.0010	99	85	115			
Molybdenum		0.522	mg/L	0.0050	104	85	115			
Selenium		0.485	mg/L	0.0050	97	85	115			
Thallium		0.495	mg/L	0.0010	99	85	115			
Lab ID: B17021678-008BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_170301A				03/01/17 22:16
Antimony		0.545	mg/L	0.0010	109	70	130			
Arsenic		0.520	mg/L	0.0010	103	70	130			
Beryllium		0.263	mg/L	0.0010	105	70	130			
Cadmium		0.248	mg/L	0.0010	99	70	130			
Chromium		0.502	mg/L	0.0050	101	70	130			
Cobalt		0.540	mg/L	0.0050	108	70	130			
Lead		0.537	mg/L	0.0010	107	70	130			
Molybdenum		0.533	mg/L	0.0010	106	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 107000
Lab ID: B17021678-008BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_170301A				03/01/17 22:16
Selenium		0.496	mg/L	0.0018	99	70	130			
Thallium		0.407	mg/L	0.00050	81	70	130			
Lab ID: B17021678-008BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170301A				03/01/17 22:20
Antimony		0.538	mg/L	0.0010	108	70	130	1.2	20	
Arsenic		0.536	mg/L	0.0010	106	70	130	3.0	20	
Beryllium		0.267	mg/L	0.0010	107	70	130	1.3	20	
Cadmium		0.263	mg/L	0.0010	105	70	130	5.8	20	
Chromium		0.508	mg/L	0.0050	102	70	130	1.0	20	
Cobalt		0.541	mg/L	0.0050	108	70	130	0.3	20	
Lead		0.540	mg/L	0.0010	108	70	130	0.4	20	
Molybdenum		0.528	mg/L	0.0010	105	70	130	1.0	20	
Selenium		0.513	mg/L	0.0018	103	70	130	3.5	20	
Thallium		0.429	mg/L	0.00050	86	70	130	5.3	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170227A	
Lab ID: **ICV**		Initial Calibration Verification Standard							02/27/17 13:22	
Mercury		0.00216	mg/L	0.00010	108	90	110			
Method: **E245.1**									Batch: 107018	
Lab ID: **MB-107018**		Method Blank				Run: HGCV202-B_170227A			02/27/17 15:23	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-107018**		Laboratory Control Sample				Run: HGCV202-B_170227A			02/27/17 15:25	
Mercury		0.00213	mg/L	0.00010	106	85	115			
Lab ID: **B17021678-007BMS**		Sample Matrix Spike				Run: HGCV202-B_170227A			02/27/17 16:14	
Mercury		0.00197	mg/L	0.00010	99	70	130			
Lab ID: **B17021678-007BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170227A			02/27/17 16:16	
Mercury		0.00197	mg/L	0.00010	99	70	130	0.1	30	
Method: **E245.1**									Batch: 107019	
Lab ID: **MB-107019**		Method Blank				Run: HGCV202-B_170227A			02/27/17 16:17	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-107019**		Laboratory Control Sample				Run: HGCV202-B_170227A			02/27/17 16:19	
Mercury		0.00215	mg/L	0.00010	107	85	115			
Lab ID: **B17021678-008BMS**		Sample Matrix Spike				Run: HGCV202-B_170227A			02/27/17 16:23	
Mercury		0.00212	mg/L	0.00010	106	70	130			
Lab ID: **B17021678-008BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170227A			02/27/17 16:25	
Mercury		0.00213	mg/L	0.00010	106	70	130	0.3	30	
Lab ID: **B17021723-001BMS**		Sample Matrix Spike				Run: HGCV202-B_170227A			02/27/17 17:03	
Mercury		0.00222	mg/L	0.00010	110	70	130			
Lab ID: **B17021723-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170227A			02/27/17 17:05	
Mercury		0.00220	mg/L	0.00010	110	70	130	0.7	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/22/17

Client: Texas Municipal Power Agency

Report Date: 03/14/17

Project: TMPA 6706150060

Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170228B	
Lab ID: **ICV**		Initial Calibration Verification Standard							02/28/17 12:57	
Mercury		0.00192	mg/L	0.00010	96	90	110			
Method: **E245.1**									Batch: 107054	
Lab ID: **MB-107054**		Method Blank				Run: HGCV202-B_170228B			02/28/17 13:02	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-107054**		Laboratory Control Sample				Run: HGCV202-B_170228B			02/28/17 13:04	
Mercury		0.00196	mg/L	0.00010	98	85	115			
Lab ID: **B17021678-016BMS**		Sample Matrix Spike				Run: HGCV202-B_170228B			02/28/17 13:13	
Mercury		0.00374	mg/L	0.00010	77	70	130			
Lab ID: **B17021678-016BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170228B			02/28/17 13:15	
Mercury		0.00369	mg/L	0.00010	75	70	130	1.3	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 03/09/17
Project: TMPA 6706150060
Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: 106994
Lab ID: **LCS-106994**	Laboratory Control Sample					Run: BAL #SD-15_170224E				02/24/17 10:35
Solids, Total Dissolved TDS @ 180 C		985	mg/L	10	97	90	110			
Lab ID: **B17021678-010A DUP**	Sample Duplicate					Run: BAL #SD-15_170224E				02/24/17 10:38
Solids, Total Dissolved TDS @ 180 C		8390	mg/L	97				0.2	5	
Lab ID: **MB-106994**	Method Blank					Run: BAL #SD-15_170224E				02/24/17 22:23
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Method: **A2540 C**										Batch: 107073
Lab ID: **MB-107073**	Method Blank					Run: BAL #SD-15_170228B				02/28/17 08:35
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: **LCS-107073**	Laboratory Control Sample					Run: BAL #SD-15_170228B				02/28/17 08:35
Solids, Total Dissolved TDS @ 180 C		1000	mg/L	10	100	90	110			
Lab ID: **B17021776-003A DUP**	Sample Duplicate					Run: BAL #SD-15_170228B				02/28/17 08:35
Solids, Total Dissolved TDS @ 180 C		17000	mg/L	140				7.0	5	R
Lab ID: **B17021678-002A DUP**	Sample Duplicate					Run: BAL #SD-15_170228B				02/28/17 08:38
Solids, Total Dissolved TDS @ 180 C		1330	mg/L	20				1.4	5	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 03/09/17
Project: TMPA 6706150060
Work Order: B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**										Analytical Run: MAN-TECH_170227B
Lab ID: **ICV**	Initial Calibration Verification Standard									02/27/17 14:28
Fluoride		1.00	mg/L	0.10	100	90	110			
Method: **A4500-F C**										Batch: R275522
Lab ID: **MBLK**	Method Blank					Run: MAN-TECH_170227B				02/27/17 14:23
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**	Laboratory Fortified Blank					Run: MAN-TECH_170227B				02/27/17 14:25
Fluoride		1.02	mg/L	0.10	102	90	110			
Lab ID: **B17021678-004AMS**	Sample Matrix Spike					Run: MAN-TECH_170227B				02/27/17 14:34
Fluoride		1.06	mg/L	0.10	99	80	120			
Lab ID: **B17021678-004AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_170227B				02/27/17 14:37
Fluoride		1.12	mg/L	0.10	105	80	120	5.5	10	
Lab ID: **B17021678-014AMS**	Sample Matrix Spike					Run: MAN-TECH_170227B				02/27/17 15:48
Fluoride		1.03	mg/L	0.10	103	80	120			
Lab ID: **B17021678-014AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_170227B				02/27/17 15:50
Fluoride		1.04	mg/L	0.10	104	80	120	1.0	10	
Lab ID: **B17021720-005AMS**	Sample Matrix Spike					Run: MAN-TECH_170227B				02/27/17 17:49
Fluoride		1.27	mg/L	0.10	105	80	120			
Lab ID: **B17021720-005AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_170227B				02/27/17 17:51
Fluoride		1.28	mg/L	0.10	106	80	120	0.8	10	
Method: **A4500-F C**										Analytical Run: MAN-TECH_170228A
Lab ID: **ICV**	Initial Calibration Verification Standard									02/28/17 09:55
Fluoride		1.01	mg/L	0.10	101	90	110			
Method: **A4500-F C**										Batch: R275550
Lab ID: **MBLK**	Method Blank					Run: MAN-TECH_170228A				02/28/17 09:50
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**	Laboratory Fortified Blank					Run: MAN-TECH_170228A				02/28/17 09:52
Fluoride		1.00	mg/L	0.10	100	90	110			
Lab ID: **B17021674-007AMS**	Sample Matrix Spike					Run: MAN-TECH_170228A				02/28/17 10:45
Fluoride		1.37	mg/L	0.10	96	80	120			
Lab ID: **B17021674-007AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_170228A				02/28/17 10:48
Fluoride		1.39	mg/L	0.10	98	80	120	1.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 03/09/17

Project: TMPA 6706150060 **Work Order:** B17021678

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170224A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								02/24/17 09:00	
pH		7.98	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R275368	
Lab ID: **B17021678-001ADUP**	Sample Duplicate					Run: PHSC _101-B_170224A			02/24/17 14:18	
pH		5.38	s.u.	0.10				0.0	3	
Lab ID: **B17021678-011ADUP**	Sample Duplicate					Run: PHSC _101-B_170224A			02/24/17 14:47	
pH		4.05	s.u.	0.10				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 03/09/17

Project: TMPA 6706150060 **Work Order:** B17021678

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 1_170228A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							02/28/17 11:43	
Chloride			2.17	mg/L	1.0	97	90	110			
Sulfate			9.05	mg/L	1.0	101	90	110			
Method:	**E300.0**									Batch: R275568	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 1_170228A			02/28/17 12:00	
Chloride			ND	mg/L	0.03						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_170228A			02/28/17 12:16	
Chloride			9.90	mg/L	1.0	99	90	110			
Sulfate			30.2	mg/L	1.0	101	90	110			
Lab ID:	**B17021678-006AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170228A			03/01/17 03:29	
Chloride			2560	mg/L	6.1	102	90	110			
Sulfate			6070	mg/L	18	106	90	110			
Lab ID:	**B17021678-006AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170228A			03/01/17 04:18	
Chloride			2540	mg/L	6.1	100	90	110	0.8	20	
Sulfate			6000	mg/L	18	103	90	110	1.2	20	
Lab ID:	**B17021678-016AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170228A			03/01/17 07:20	
Chloride			2450	mg/L	6.1	100	90	110			
Sulfate			5430	mg/L	18	105	90	110			
Lab ID:	**B17021678-016AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170228A			03/01/17 08:09	
Chloride			2430	mg/L	6.1	99	90	110	0.5	20	
Sulfate			5420	mg/L	18	105	90	110	0.2	20	
Lab ID:	**B17021712-001AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170228A			03/01/17 10:05	
Chloride			554	mg/L	3.0	106	90	110			
Sulfate			3930	mg/L	9.1	99	90	110			
Lab ID:	**B17021712-001AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170228A			03/01/17 10:22	
Chloride			556	mg/L	3.0	106	90	110	0.4	20	
Sulfate			3950	mg/L	9.1	100	90	110	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 03/13/17
Work Order: B17021678

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8422
Lab ID: LCS-RA226-8422	Laboratory Control Sample				Run: G5000W_170228C				03/13/17 09:06
Radium 226	9.3	pCi/L		88	80	120			
Lab ID: MB-RA226-8422	Method Blank				Run: G5000W_170228C				03/13/17 09:06
Radium 226	0.2	pCi/L							
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17021678-001CMS	Sample Matrix Spike				Run: G5000W_170228C				03/13/17 09:06
Radium 226	21	pCi/L		96	70	130			
Lab ID: B17021678-001CMSD	Sample Matrix Spike Duplicate				Run: G5000W_170228C				03/13/17 09:06
Radium 226	19	pCi/L		90	70	130	6.8	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 03/13/17
Work Order: B17021678

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**									Batch: RA228-5442
Lab ID: **LCS-228-RA226-8422**	Laboratory Control Sample				Run: TENNELEC-3_170228C				03/07/17 13:37
Radium 228	9.6	pCi/L		93	80	120			
Lab ID: **MB-RA226-8422**	Method Blank				Run: TENNELEC-3_170228C				03/07/17 13:37
Radium 228	0.6	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: **B17021678-011CMS**	Sample Matrix Spike				Run: TENNELEC-3_170228C				03/07/17 13:37
Radium 228	24	pCi/L		109	70	130			
Lab ID: **B17021678-011CMSD**	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170228C				03/07/17 13:37
Radium 228	22	pCi/L		100	70	130	8.4	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17021678

Login completed by: Tabitha Edwards
Date Received: 2/24/2017
Reviewed by: BL2000\cindy
Received by: lab
Reviewed Date: 2/28/2017
Carrier name: Return-UPS NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 1.1°C, shipping container 2 was 1.3°C, shipping container 3 was 0.6°C, shipping container 4 was 1.0°C, shipping container 5 was 0.4°C and shipping container 6 was 0.7°C.

One 2 Liter Plastic Nitric preserved container was received with no identification. Only one 2 Liter Plastic Nitric preserved container was received for sample SFLMW-1 all other samples had two. Labeled the container with no identification as SFLMW-1 per Cindy Rohrer, Energy Laboratories Branch Manager.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	AP MW-3	2/20/17	1755	4	W	X	X			B702167 8-001
2	AP MW-1D	2/21/17	0952			X	X			002
3	AP MW-5		1131			X	X			003
4	AP MW-4		1240			X	X			004
5	EQBK-BJG-22117		1345			X	X			005
6	SSP/AP MW-1		1452			X	X			006
7	SSP MW-2		1555			X	X			007
8	SSP MW-4		1701			X	X			008
9	SSP MW-3	2/22/17	0937			X	X			009
10	SFL MW-1	11	1102			X	X			010

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	2/23/17 @ 1410	Brian Gieselman			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Lisa Bradley	2-24-17 9:15	Lisa Bradley

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2							See Attached	RUSH TAT	ELI LAB ID* Laboratory Use Only
1	SFL MW-6	2/22/17	1427	4	W	X	X									B17021678-011
2	SFL MW-4	↓	1550													012
3	SFL MW-2	↓	1709													013
4	EQBK-BJG-22217	↓	1755													014
5	SFL MW-5	2/23/17	0902													015
6	SFL MW-3	↓	1016													016
7	EQBK-BJG-22317	↓	1120													017
8	DUP-1	2/21/17	—													018
9	DUP-2	2/22/17	—													019
10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	2/23/17 @ 1410	Brian Gieselman			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Lon Bradley	Date/Time 2-24-17 9:15	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

BOTTLE ORDER 109818

SHIPPED TO: Amec - Austin

Contact: Brian Gieselman
3755 South Capital of Texas Highway
Suite 375
Austin TX 78704
Phone:
Project: CCRR

Order Created by: Shari Endy
Shipped From: Billings, MT
Ship Date: 2/13/2017
VIA: Ground
Quote Used: 3997

Bottle Size/Type	Bottles Per Samp	Method	Tests	Critical Hold Time	Preservative	Notes	Num of Samp
Appendix III & IV (20 Sets)							
1 Liter Plastic	1	A2540 C	Solids, Total Dissolved				1
		A4500-H B	pH	0.24 hrs			
		E300.0	Anions by Ion Chromatography				
		A4500-F C	Fluoride				
250 mL Plastic	1	E200.7_8	Metals by ICP/ICPMS, Tot. Rec.		■ HNO3		1
		E245.1	Mercury, Total Recoverable				
2 Liter Plastic	2	E903.0	Radium 226, Total		■ HNO3		1
		RA-05	Radium 228, Total				
		A7500-RA	Radium 226 + Radium 228				

■ HNO3 - Nitric Acid ☐ H2SO4 - Sulfuric Acid ■ NaOH - Sodium Hydroxide
■ ZnAc - Zinc Acetate ■ HCl - Hydrochloric Acid ☐ H3PO4 - Phosphoric Acid

We strongly suggest that the samples are shipped the same day as they are collected.

Material Safety Data Sheets(MSDS) Available @ EnergyLab.com ->Services -> MSDS Sheets

Corrosive Chemicals: Nitric, Sulfuric, Phosphoric, Hydrochloric Acids and Sodium Hydroxide. Zinc Acetate is a skin irritant.

Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17050467 Quote ID: B3997 - CCRR

Project Name: TMPA 6706150060

Energy Laboratories Inc Billings MT received the following 9 samples for Texas Municipal Power Agency on 5/4/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17050467-001	SFL MW-3	05/02/17 9:35	05/04/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B17050467-002	SFL MW-4	05/02/17 10:38	05/04/17	Ground Water	Same As Above
B17050467-003	MNW-18	05/02/17 12:38	05/04/17	Ground Water	Same As Above
B17050467-006	MNW-15	05/02/17 17:51	05/04/17	Ground Water	Same As Above
B17050467-008	EQBK-SCM-50217	05/02/17 18:45	05/04/17	Ground Water	Same As Above
B17050467-009	DUP-1	05/02/17 0:00	05/04/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA 6706150060
Work Order: B17050467

Revised Date: 12/21/17
Report Date: 06/07/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050467-001
Client Sample ID: SFL MW-3

Revised Date: 12/21/17
Report Date: 06/07/17
Collection Date: 05/02/17 09:35
DateReceived: 05/04/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	590	mg/L		1		E200.7	05/09/17 05:33 / rlh
Magnesium	113	mg/L		1		E200.7	05/09/17 05:33 / rlh
Potassium	47	mg/L		1		E200.7	05/09/17 05:33 / rlh
Sodium	772	mg/L	D	4		E200.7	05/09/17 05:33 / rlh
PHYSICAL PROPERTIES							
pH	3.8	s.u.	H	0.1		A4500-H B	05/04/17 19:20 / pjw
Solids, Total Dissolved TDS @ 180 C	5130	mg/L	D	100		A2540 C	05/05/17 09:07 / rik
INORGANICS							
Chloride	1390	mg/L	D	6		E300.0	05/07/17 02:28 / cjm
Sulfate	2290	mg/L	D	20		E300.0	05/07/17 02:28 / cjm
Fluoride	0.6	mg/L		0.1		A4500-F C	05/08/17 17:44 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/09/17 03:59 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/09/17 03:59 / jpv
Barium	0.03	mg/L		0.01		E200.8	05/09/17 03:59 / jpv
Beryllium	0.034	mg/L		0.001		E200.8	05/09/17 03:59 / jpv
Boron	2.49	mg/L		0.05		E200.7	05/09/17 05:33 / rlh
Cadmium	0.008	mg/L		0.005		E200.8	05/09/17 03:59 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/09/17 03:59 / jpv
Cobalt	0.07	mg/L		0.02		E200.8	05/09/17 03:59 / jpv
Lead	0.02	mg/L		0.01		E200.8	05/09/17 03:59 / jpv
Lithium	0.29	mg/L	D	0.04		E200.7	05/09/17 05:33 / rlh
Mercury	0.002	mg/L		0.001		E245.1	05/08/17 15:46 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/09/17 03:59 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/09/17 03:59 / jpv
Thallium	0.006	mg/L		0.002		E200.8	05/09/17 03:59 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.5	pCi/L				E903.0	05/30/17 11:21 / eli-ca
Radium 226 precision (±)	0.34	pCi/L				E903.0	05/30/17 11:21 / eli-ca
Radium 226 MDC	0.11	pCi/L				E903.0	05/30/17 11:21 / eli-ca
Radium 228	5.4	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 228 precision (±)	1.7	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 226 + Radium 228	6.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.7	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050467-002
Client Sample ID: SFL MW-4

Revised Date: 12/21/17
Report Date: 06/07/17
Collection Date: 05/02/17 10:38
DateReceived: 05/04/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	735	mg/L		1		E200.7	05/09/17 06:08 / rlh
Magnesium	114	mg/L		1		E200.7	05/09/17 06:08 / rlh
Potassium	52	mg/L		1		E200.7	05/09/17 06:08 / rlh
Sodium	1000	mg/L	D	4		E200.7	05/09/17 06:08 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	05/04/17 19:23 / pjw
Solids, Total Dissolved TDS @ 180 C	5700	mg/L	D	90		A2540 C	05/05/17 09:07 / rik
INORGANICS							
Chloride	1730	mg/L	D	6		E300.0	05/07/17 02:48 / cjm
Sulfate	2280	mg/L	D	20		E300.0	05/07/17 02:48 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/08/17 17:57 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/09/17 04:02 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/11/17 19:56 / jpv
Barium	0.03	mg/L		0.01		E200.7	05/09/17 06:08 / rlh
Beryllium	ND	mg/L		0.001		E200.8	05/09/17 04:02 / jpv
Boron	0.58	mg/L		0.05		E200.7	05/09/17 06:08 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/09/17 04:02 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/09/17 04:02 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/09/17 04:02 / jpv
Lead	ND	mg/L		0.01		E200.8	05/09/17 04:02 / jpv
Lithium	0.42	mg/L	D	0.04		E200.7	05/09/17 06:08 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/05/17 15:01 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/09/17 04:02 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/09/17 04:02 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/09/17 04:02 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.47	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 precision (±)	0.12	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 MDC	0.11	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 228	1.1	pCi/L	U			RA-05	05/22/17 14:28 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 226 + Radium 228	1.5	pCi/L	U			A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050467-003
Client Sample ID: MNW-18

Revised Date: 12/21/17
Report Date: 06/07/17
Collection Date: 05/02/17 12:38
DateReceived: 05/04/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	301	mg/L		1		E200.7	05/09/17 06:11 / rlh
Magnesium	48	mg/L		1		E200.7	05/09/17 06:11 / rlh
Potassium	32	mg/L		1		E200.7	05/09/17 06:11 / rlh
Sodium	703	mg/L	D	2		E200.7	05/09/17 06:11 / rlh
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	05/04/17 19:25 / pjw
Solids, Total Dissolved TDS @ 180 C	3050	mg/L	D	40		A2540 C	05/05/17 09:07 / rik
INORGANICS							
Chloride	547	mg/L	D	3		E300.0	05/07/17 03:07 / cjm
Sulfate	1470	mg/L	D	9		E300.0	05/07/17 03:07 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	05/08/17 18:05 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/09/17 04:05 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/11/17 19:59 / jpv
Barium	0.05	mg/L		0.01		E200.7	05/09/17 06:11 / rlh
Beryllium	ND	mg/L		0.001		E200.7	05/09/17 06:11 / rlh
Boron	0.45	mg/L		0.05		E200.7	05/09/17 06:11 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/09/17 04:05 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/09/17 04:05 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/09/17 04:05 / jpv
Lead	ND	mg/L		0.01		E200.8	05/09/17 04:05 / jpv
Lithium	0.39	mg/L	D	0.02		E200.7	05/09/17 06:11 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/05/17 15:03 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/09/17 06:11 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/09/17 04:05 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/09/17 04:05 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.2	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 precision (±)	0.29	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 MDC	0.13	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 228	2.3	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	05/22/17 14:28 / eli-ca
Radium 226 + Radium 228	3.5	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050467-006
Client Sample ID: MNW-15

Revised Date: 12/21/17
Report Date: 06/07/17
Collection Date: 05/02/17 17:51
DateReceived: 05/04/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	280	mg/L		1		E200.7	05/09/17 06:50 / rlh
Magnesium	53	mg/L		1		E200.7	05/09/17 06:50 / rlh
Potassium	27	mg/L		1		E200.7	05/09/17 06:50 / rlh
Sodium	459	mg/L	D	2		E200.7	05/09/17 06:50 / rlh
PHYSICAL PROPERTIES							
pH	3.7	s.u.	H	0.1		A4500-H B	05/04/17 19:33 / pjw
Solids, Total Dissolved TDS @ 180 C	2540	mg/L	D	40		A2540 C	05/05/17 10:08 / rik
INORGANICS							
Chloride	730	mg/L	D	3		E300.0	05/07/17 04:06 / cjm
Sulfate	1270	mg/L	D	9		E300.0	05/07/17 04:06 / cjm
Fluoride	0.5	mg/L		0.1		A4500-F C	05/08/17 18:16 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/09/17 07:38 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/11/17 20:29 / jpv
Barium	0.02	mg/L		0.01		E200.7	05/09/17 06:50 / rlh
Beryllium	0.077	mg/L		0.001		E200.7	05/09/17 06:50 / rlh
Boron	9.51	mg/L		0.05		E200.7	05/09/17 06:50 / rlh
Cadmium	0.093	mg/L		0.005		E200.7	05/09/17 06:50 / rlh
Chromium	ND	mg/L		0.01		E200.8	05/09/17 07:38 / jpv
Cobalt	0.27	mg/L		0.02		E200.8	05/09/17 07:38 / jpv
Lead	ND	mg/L		0.01		E200.8	05/09/17 07:38 / jpv
Lithium	0.09	mg/L	D	0.02		E200.7	05/09/17 06:50 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/05/17 15:12 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/09/17 06:50 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/09/17 07:38 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/09/17 07:38 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.15	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 precision (±)	0.09	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 MDC	0.12	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 228	0.55	pCi/L	U			RA-05	05/22/17 16:03 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	05/22/17 16:03 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	05/22/17 16:03 / eli-ca
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050467-008
Client Sample ID: EQBK-SCM-50217

Revised Date: 12/21/17
Report Date: 06/07/17
Collection Date: 05/02/17 18:45
DateReceived: 05/04/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	05/09/17 06:57 / rlh
Magnesium	ND	mg/L		1		E200.7	05/09/17 06:57 / rlh
Potassium	ND	mg/L		1		E200.7	05/09/17 06:57 / rlh
Sodium	ND	mg/L		1		E200.7	05/09/17 06:57 / rlh
PHYSICAL PROPERTIES							
pH	5.6	s.u.	H	0.1		A4500-H B	05/04/17 19:38 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/05/17 11:16 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	05/07/17 05:24 / cjm
Sulfate	ND	mg/L		1		E300.0	05/07/17 05:24 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/08/17 18:28 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/09/17 07:45 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/09/17 07:45 / jpv
Barium	ND	mg/L		0.01		E200.7	05/09/17 06:57 / rlh
Beryllium	ND	mg/L		0.001		E200.7	05/09/17 06:57 / rlh
Boron	ND	mg/L		0.05		E200.7	05/09/17 06:57 / rlh
Cadmium	ND	mg/L		0.005		E200.7	05/09/17 06:57 / rlh
Chromium	ND	mg/L		0.01		E200.7	05/09/17 06:57 / rlh
Cobalt	ND	mg/L		0.02		E200.7	05/09/17 06:57 / rlh
Lead	ND	mg/L		0.01		E200.8	05/09/17 07:45 / jpv
Lithium	ND	mg/L		0.01		E200.7	05/09/17 06:57 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/05/17 15:16 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/09/17 06:57 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/09/17 07:45 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/09/17 07:45 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.08	pCi/L	U			E903.0	05/30/17 13:01 / eli-ca
Radium 226 precision (±)	0.08	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 MDC	0.12	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 228	2.5	pCi/L				RA-05	05/22/17 16:03 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	05/22/17 16:03 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	05/22/17 16:03 / eli-ca
Radium 226 + Radium 228	2.6	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	2.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050467-009
Client Sample ID: DUP-1

Revised Date: 12/21/17
Report Date: 06/07/17
Collection Date: 05/02/17
DateReceived: 05/04/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	852	mg/L		1		E200.7	05/09/17 07:01 / rlh
Magnesium	129	mg/L		1		E200.7	05/09/17 07:01 / rlh
Potassium	59	mg/L		1		E200.7	05/09/17 07:01 / rlh
Sodium	1160	mg/L	D	4		E200.7	05/09/17 07:01 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	05/04/17 19:44 / pjw
Solids, Total Dissolved TDS @ 180 C	6240	mg/L	D	90		A2540 C	05/05/17 11:16 / rik
INORGANICS							
Chloride	1680	mg/L	D	6		E300.0	05/07/17 06:22 / cjm
Sulfate	2200	mg/L	D	20		E300.0	05/07/17 06:22 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/08/17 18:31 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/09/17 07:48 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/11/17 20:33 / jpv
Barium	0.03	mg/L		0.01		E200.7	05/09/17 07:01 / rlh
Beryllium	ND	mg/L		0.001		E200.8	05/09/17 07:48 / jpv
Boron	0.65	mg/L		0.05		E200.7	05/09/17 07:01 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/09/17 07:48 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/09/17 07:48 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/09/17 07:48 / jpv
Lead	ND	mg/L		0.01		E200.8	05/09/17 07:48 / jpv
Lithium	0.48	mg/L	D	0.04		E200.7	05/09/17 07:01 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/05/17 15:18 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/09/17 07:48 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/09/17 07:48 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/09/17 07:48 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.33	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 precision (±)	0.11	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 226 MDC	0.11	pCi/L				E903.0	05/30/17 13:01 / eli-ca
Radium 228	0.59	pCi/L	U			RA-05	05/22/17 16:03 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	05/22/17 16:03 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	05/22/17 16:03 / eli-ca
Radium 226 + Radium 228	0.9	pCi/L	U			A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: 109212
Lab ID: **LCS-109212**	Laboratory Control Sample					Run: BAL #SD-15_170505B				05/05/17 09:04
Solids, Total Dissolved TDS @ 180 C		996	mg/L	10	100	90	110			
Lab ID: **B17050467-005A DUP**	Sample Duplicate					Run: BAL #SD-15_170505B				05/05/17 09:05
Solids, Total Dissolved TDS @ 180 C		8210	mg/L	93				0.3	5	D
Lab ID: **MB-109212**	Method Blank					Run: BAL #SD-15_170505B				05/08/17 08:58
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Method: **A2540 C**										Batch: 109229
Lab ID: **LCS-109229**	Laboratory Control Sample					Run: BAL #SD-15_170505C				05/05/17 11:15
Solids, Total Dissolved TDS @ 180 C		991	mg/L	10	100	90	110			
Lab ID: **B17050467-007A DUP**	Sample Duplicate					Run: BAL #SD-15_170505C				05/05/17 11:15
Solids, Total Dissolved TDS @ 180 C		879	mg/L	10				1.6	5	
Lab ID: **MB-109229**	Method Blank					Run: BAL #SD-15_170505C				05/08/17 09:07
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170508B	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/08/17 16:59	
Fluoride		1.01	mg/L	0.10	101	90	110			
Method: **A4500-F C**									Batch: R279515	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170508B			05/08/17 16:54	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170508B			05/08/17 16:56	
Fluoride		0.980	mg/L	0.10	98	90	110			
Lab ID: **B17050467-002AMS**		Sample Matrix Spike				Run: MAN-TECH_170508B			05/08/17 17:59	
Fluoride		1.03	mg/L	0.10	95	80	120			
Lab ID: **B17050467-002AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170508B			05/08/17 18:02	
Fluoride		1.04	mg/L	0.10	96	80	120	1.0	10	
Lab ID: **B17050507-003AMS**		Sample Matrix Spike				Run: MAN-TECH_170508B			05/08/17 18:53	
Fluoride		2.57	mg/L	0.10	100	80	120			
Lab ID: **B17050507-003AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170508B			05/08/17 18:56	
Fluoride		2.56	mg/L	0.10	99	80	120	0.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**								Analytical Run: PHSC _101-B_170504A		
Lab ID: **pH 8**	Initial Calibration Verification Standard									05/04/17 08:42
pH		7.98	s.u.	0.10	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard									05/04/17 19:02
pH		7.03	s.u.	0.10	100	98	102			
Method: **A4500-H B**										Batch: R279245
Lab ID: **B17050467-008ADUP**	Sample Duplicate					Run: PHSC _101-B_170504A				05/04/17 19:41
pH		5.54	s.u.	0.10				1.6	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050467

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 2_170505A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							05/05/17 16:40	
Chloride			2.15	mg/L	1.0	96	90	110			
Sulfate			8.94	mg/L	1.0	99	90	110			
Method:	**E300.0**									Batch: R279451	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 2_170505A			05/05/17 16:59	
Chloride			0.009	mg/L	0.002						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_170505A			05/05/17 17:19	
Chloride			10.3	mg/L	1.0	103	90	110			
Sulfate			31.1	mg/L	1.0	104	90	110			
Lab ID:	**B17050448-005AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170505A			05/07/17 01:10	
Chloride			55.4	mg/L	1.0	108	90	110			
Sulfate			338	mg/L	1.0	101	90	110			
Lab ID:	**B17050448-005AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170505A			05/07/17 01:29	
Chloride			55.5	mg/L	1.0	109	90	110	0.3	20	
Sulfate			339	mg/L	1.0	102	90	110	0.5	20	
Lab ID:	**B17050467-008AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170505A			05/07/17 05:43	
Chloride			11.0	mg/L	1.0	110	90	110			
Sulfate			33.2	mg/L	1.0	110	90	110			
Lab ID:	**B17050467-008AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170505A			05/07/17 06:03	
Chloride			11.1	mg/L	1.0	110	90	110	0.2	20	
Sulfate			33.2	mg/L	1.0	110	90	110	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/07/17

Project: TMPA 6706150060

Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170508A	
Lab ID: ICV	12	Continuing Calibration Verification Standard							05/08/17 11:07	
Barium		2.53	mg/L	0.10	101	95	105			
Beryllium		1.25	mg/L	0.010	100	95	105			
Boron		2.50	mg/L	0.10	100	95	105			
Cadmium		2.49	mg/L	0.010	100	95	105			
Calcium		25.5	mg/L	1.0	102	95	105			
Chromium		2.48	mg/L	0.050	99	95	105			
Cobalt		2.48	mg/L	0.020	99	95	105			
Lithium		1.29	mg/L	0.10	103	95	105			
Magnesium		25.8	mg/L	1.0	103	95	105			
Molybdenum		2.52	mg/L	0.10	101	95	105			
Potassium		25.4	mg/L	1.0	102	95	105			
Sodium		25.4	mg/L	1.0	102	95	105			
Method: E200.7										Batch: 109200
Lab ID: MB-109200	9	Method Blank				Run: ICP203-B_170508A				05/09/17 04:03
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		0.03	mg/L	0.03						
Lab ID: LCS-109200	9	Laboratory Control Sample				Run: ICP203-B_170508A				05/09/17 04:06
Barium		0.546	mg/L	0.10	109	85	115			
Beryllium		0.277	mg/L	0.010	111	85	115			
Boron		0.533	mg/L	0.10	107	85	115			
Calcium		27.4	mg/L	1.0	110	85	115			
Lithium		0.553	mg/L	0.10	111	85	115			
Magnesium		27.9	mg/L	1.0	111	85	115			
Molybdenum		0.524	mg/L	0.10	105	85	115			
Potassium		27.4	mg/L	1.0	110	85	115			
Sodium		28.0	mg/L	1.0	112	85	115			
Lab ID: B17050448-005DMS3	9	Sample Matrix Spike				Run: ICP203-B_170508A				05/09/17 05:16
Barium		0.462	mg/L	0.050	90	70	130			
Beryllium		0.235	mg/L	0.0010	93	70	130			
Boron		0.448	mg/L	0.050	90	70	130			
Calcium		48.9	mg/L	1.0	95	70	130			
Lithium		0.497	mg/L	0.10	95	70	130			
Magnesium		30.2	mg/L	1.0	98	70	130			
Molybdenum		0.457	mg/L	0.0071	91	70	130			
Potassium		29.2	mg/L	1.0	95	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/07/17

Project: TMPA 6706150060

Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 109200
Lab ID: B17050448-005DMS3	9	Sample Matrix Spike				Run: ICP203-B_170508A				05/09/17 05:16
Sodium		43.8	mg/L	1.0	92	70	130			
Lab ID: B17050448-005DMSD	9	Sample Matrix Spike Duplicate				Run: ICP203-B_170508A				05/09/17 05:19
Barium		0.445	mg/L	0.050	86	70	130	3.8	20	
Beryllium		0.225	mg/L	0.0010	89	70	130	4.3	20	
Boron		0.434	mg/L	0.050	87	70	130	3.3	20	
Calcium		46.7	mg/L	1.0	86	70	130	4.5	20	
Lithium		0.478	mg/L	0.10	91	70	130	3.9	20	
Magnesium		28.9	mg/L	1.0	93	70	130	4.3	20	
Molybdenum		0.427	mg/L	0.0071	85	70	130	6.7	20	
Potassium		28.0	mg/L	1.0	91	70	130	4.2	20	
Sodium		42.3	mg/L	1.0	86	70	130	3.6	20	
Method: E200.7										Batch: 109201
Lab ID: MB-109201	12	Method Blank				Run: ICP203-B_170508A				05/09/17 06:15
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: LCS-109201	12	Laboratory Control Sample				Run: ICP203-B_170508A				05/09/17 06:19
Barium		0.497	mg/L	0.10	99	85	115			
Beryllium		0.250	mg/L	0.010	100	85	115			
Boron		0.467	mg/L	0.10	93	85	115			
Cadmium		0.245	mg/L	0.010	98	85	115			
Calcium		24.7	mg/L	1.0	99	85	115			
Chromium		0.509	mg/L	0.050	102	85	115			
Cobalt		0.487	mg/L	0.050	97	85	115			
Lithium		0.488	mg/L	0.10	98	85	115			
Magnesium		25.1	mg/L	1.0	101	85	115			
Molybdenum		0.489	mg/L	0.10	98	85	115			
Potassium		24.5	mg/L	1.0	98	85	115			
Sodium		25.0	mg/L	1.0	100	85	115			
Lab ID: B17050467-005BMS3	12	Sample Matrix Spike				Run: ICP203-B_170508A				05/09/17 06:36
Barium		0.566	mg/L	0.050	108	70	130			
Beryllium		0.266	mg/L	0.0029	106	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency
Report Date: 06/07/17

Project: TMPA 6706150060
Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**										Batch: 109201
Lab ID: **B17050467-005BMS3**	12	Sample Matrix Spike				Run: ICP203-B_170508A				05/09/17 06:36
Boron		2.17	mg/L	0.068	130	70	130			
Cadmium		0.241	mg/L	0.020	96	70	130			
Calcium		887	mg/L	1.6		70	130			A
Chromium		0.619	mg/L	0.041	124	70	130			
Cobalt		0.566	mg/L	0.10	113	70	130			
Lithium		1.77	mg/L	0.10	123	70	130			
Magnesium		150	mg/L	1.5		70	130			A
Molybdenum		0.588	mg/L	0.14	118	70	130			
Potassium		97.6	mg/L	1.4	156	70	130			S
Sodium		2100	mg/L	8.4		70	130			A
Lab ID: **B17050467-005BMSD**	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170508A				05/09/17 06:40
Barium		0.535	mg/L	0.050	102	70	130	5.6	20	
Beryllium		0.251	mg/L	0.0029	100	70	130	5.7	20	
Boron		2.09	mg/L	0.068	114	70	130	3.8	20	
Cadmium		0.231	mg/L	0.020	92	70	130	4.4	20	
Calcium		864	mg/L	1.6		70	130	2.7	20	A
Chromium		0.574	mg/L	0.041	115	70	130	7.6	20	
Cobalt		0.533	mg/L	0.10	107	70	130	6.1	20	
Lithium		1.72	mg/L	0.10	112	70	130	3.1	20	
Magnesium		145	mg/L	1.5		70	130	3.6	20	A
Molybdenum		0.557	mg/L	0.14	111	70	130	5.5	20	
Potassium		83.1	mg/L	1.4	98	70	130	16	20	
Sodium		2010	mg/L	8.4		70	130	4.3	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/07/17

Project: TMPA 6706150060

Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170508A	
Lab ID: QCS	11	Initial Calibration Verification Standard							05/08/17 23:52	
Antimony		0.0478	mg/L	0.050	96	90	110			
Arsenic		0.0497	mg/L	0.0050	99	90	110			
Barium		0.0482	mg/L	0.10	96	90	110			
Beryllium		0.0246	mg/L	0.0010	98	90	110			
Cadmium		0.0272	mg/L	0.0010	109	90	110			
Chromium		0.0514	mg/L	0.010	103	90	110			
Cobalt		0.0509	mg/L	0.010	102	90	110			
Lead		0.0488	mg/L	0.010	98	90	110			
Molybdenum		0.0478	mg/L	0.0050	96	90	110			
Selenium		0.0498	mg/L	0.0050	100	90	110			
Thallium		0.0487	mg/L	0.10	97	90	110			
Method: E200.8									Batch: 109200	
Lab ID: MB-109200	11	Method Blank				Run: ICPMS206-B_170508A			05/08/17 13:32	
Antimony		0.0003	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		0.0002	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00006	mg/L	7E-06						
Lab ID: LCS-109200	11	Laboratory Control Sample				Run: ICPMS206-B_170508A			05/08/17 14:46	
Antimony		0.507	mg/L	0.0010	101	85	115			
Arsenic		0.509	mg/L	0.0010	102	85	115			
Barium		0.510	mg/L	0.050	102	85	115			
Beryllium		0.247	mg/L	0.0010	99	85	115			
Cadmium		0.248	mg/L	0.0010	99	85	115			
Chromium		0.498	mg/L	0.0050	100	85	115			
Cobalt		0.516	mg/L	0.0050	103	85	115			
Lead		0.512	mg/L	0.0010	102	85	115			
Molybdenum		0.495	mg/L	0.0010	99	85	115			
Selenium		0.508	mg/L	0.0010	102	85	115			
Thallium		0.508	mg/L	0.00050	102	85	115			
Lab ID: B17050448-005DMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170508A			05/09/17 03:25	
Antimony		0.505	mg/L	0.0010	101	70	130			
Arsenic		0.514	mg/L	0.0010	98	70	130			
Barium		0.515	mg/L	0.050	100	70	130			
Beryllium		0.222	mg/L	0.0010	88	70	130			
Cadmium		0.259	mg/L	0.0010	103	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/07/17

Project: TMPA 6706150060

Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 109200
Lab ID: B17050448-005DMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170508A				05/09/17 03:25
Chromium		0.483	mg/L	0.0050	97	70	130			
Cobalt		0.487	mg/L	0.0050	96	70	130			
Lead		0.493	mg/L	0.0010	98	70	130			
Molybdenum		0.486	mg/L	0.0010	97	70	130			
Selenium		0.494	mg/L	0.0010	99	70	130			
Thallium		0.493	mg/L	0.00050	97	70	130			
Lab ID: B17050448-005DMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170508A				05/09/17 03:28
Antimony		0.502	mg/L	0.0010	100	70	130	0.5	20	
Arsenic		0.508	mg/L	0.0010	97	70	130	1.1	20	
Barium		0.512	mg/L	0.050	100	70	130	0.6	20	
Beryllium		0.221	mg/L	0.0010	87	70	130	0.5	20	
Cadmium		0.263	mg/L	0.0010	105	70	130	1.7	20	
Chromium		0.491	mg/L	0.0050	98	70	130	1.6	20	
Cobalt		0.479	mg/L	0.0050	95	70	130	1.6	20	
Lead		0.485	mg/L	0.0010	97	70	130	1.6	20	
Molybdenum		0.488	mg/L	0.0010	97	70	130	0.3	20	
Selenium		0.486	mg/L	0.0010	97	70	130	1.5	20	
Thallium		0.485	mg/L	0.00050	96	70	130	1.5	20	
Method: E200.8										Batch: 109201
Lab ID: MB-109201	10	Method Blank				Run: ICPMS206-B_170508A				05/09/17 07:01
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		7E-06	mg/L	7E-06						
Lab ID: LCS-109201	10	Laboratory Control Sample				Run: ICPMS206-B_170508A				05/09/17 07:11
Antimony		0.510	mg/L	0.0010	102	85	115			
Arsenic		0.515	mg/L	0.0010	103	85	115			
Beryllium		0.231	mg/L	0.0010	92	85	115			
Cadmium		0.257	mg/L	0.0010	103	85	115			
Chromium		0.472	mg/L	0.0050	94	85	115			
Cobalt		0.473	mg/L	0.0050	95	85	115			
Lead		0.490	mg/L	0.0010	98	85	115			
Molybdenum		0.487	mg/L	0.0010	97	85	115			
Selenium		0.495	mg/L	0.0010	99	85	115			
Thallium		0.491	mg/L	0.00050	98	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/07/17

Project: TMPA 6706150060

Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 109201
Lab ID: **B17050467-005BMS3**	10	Sample Matrix Spike				Run: ICPMS206-B_170508A				05/09/17 07:14
Antimony		0.501	mg/L	0.0010	100	70	130			
Arsenic		0.503	mg/L	0.0016	101	70	130			
Beryllium		0.237	mg/L	0.0010	95	70	130			
Cadmium		0.234	mg/L	0.0010	93	70	130			
Chromium		0.469	mg/L	0.0050	92	70	130			
Cobalt		0.494	mg/L	0.0050	98	70	130			
Lead		0.492	mg/L	0.0010	97	70	130			
Molybdenum		0.488	mg/L	0.0010	98	70	130			
Selenium		0.463	mg/L	0.0036	93	70	130			
Thallium		0.476	mg/L	0.00050	95	70	130			
Lab ID: **B17050467-005BMSD**	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170508A				05/09/17 07:18
Antimony		0.496	mg/L	0.0010	99	70	130	0.9	20	
Arsenic		0.496	mg/L	0.0016	99	70	130	1.2	20	
Beryllium		0.231	mg/L	0.0010	92	70	130	2.7	20	
Cadmium		0.246	mg/L	0.0010	98	70	130	4.8	20	
Chromium		0.472	mg/L	0.0050	92	70	130	0.6	20	
Cobalt		0.486	mg/L	0.0050	97	70	130	1.5	20	
Lead		0.483	mg/L	0.0010	95	70	130	1.8	20	
Molybdenum		0.475	mg/L	0.0010	95	70	130	2.7	20	
Selenium		0.443	mg/L	0.0036	89	70	130	4.4	20	
Thallium		0.466	mg/L	0.00050	93	70	130	2.2	20	
Method: **E200.8**										Analytical Run: ICPMS206-B_170511A
Lab ID: **QCS**		Initial Calibration Verification Standard								05/11/17 11:02
Arsenic		0.0481	mg/L	0.0050	96	90	110			
Method: **E200.8**										Batch: 109200
Lab ID: **MB-109200**		Method Blank				Run: ICPMS206-B_170511A				05/11/17 19:15
Arsenic		ND	mg/L	0.0002						
Method: **E200.8**										Batch: 109201
Lab ID: **MB-109201**		Method Blank				Run: ICPMS206-B_170511A				05/11/17 20:19
Arsenic		ND	mg/L	0.0002						

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/07/17

Project: TMPA 6706150060

Work Order: B17050467

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170505A	
Lab ID: **ICV**	Initial Calibration Verification Standard								05/05/17 09:05	
Mercury		0.00210	mg/L	0.00010	105	90	110			
Method: **E245.1**									Batch: 109219	
Lab ID: **MB-109219**	Method Blank					Run: HGCV202-B_170505A			05/05/17 14:33	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-109219**	Laboratory Control Sample					Run: HGCV202-B_170505A			05/05/17 14:35	
Mercury		0.00195	mg/L	0.00010	97	85	115			
Lab ID: **B17050340-001CMS**	Sample Matrix Spike					Run: HGCV202-B_170505A			05/05/17 14:39	
Mercury		0.00199	mg/L	0.00010	100	70	130			
Lab ID: **B17050340-001CMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170505A			05/05/17 14:46	
Mercury		0.00203	mg/L	0.00010	101	70	130	1.6	30	
Lab ID: **B17050467-009BMS**	Sample Matrix Spike					Run: HGCV202-B_170505A			05/05/17 15:20	
Mercury		0.00196	mg/L	0.00010	98	70	130			
Lab ID: **B17050467-009BMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170505A			05/05/17 15:22	
Mercury		0.00196	mg/L	0.00010	98	70	130	0.0	30	
Method: **E245.1**									Analytical Run: HGCV202-B_170508A	
Lab ID: **ICV**	Initial Calibration Verification Standard								05/08/17 14:18	
Mercury		0.00216	mg/L	0.00010	108	90	110			
Method: **E245.1**									Batch: 109273	
Lab ID: **MB-109273**	Method Blank					Run: HGCV202-B_170508A			05/08/17 15:43	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-109273**	Laboratory Control Sample					Run: HGCV202-B_170508A			05/08/17 15:45	
Mercury		0.00224	mg/L	0.00010	112	85	115			
Lab ID: **B17050467-001BMS**	Sample Matrix Spike					Run: HGCV202-B_170508A			05/08/17 15:48	
Mercury		0.00377	mg/L	0.00010	89	70	130			
Lab ID: **B17050467-001BMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170508A			05/08/17 15:50	
Mercury		0.00375	mg/L	0.00010	89	70	130	0.3	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 06/06/17
Work Order: B17050467

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8497
Lab ID: LCS-RA226-8497	Laboratory Control Sample				Run: G542M-2_170510A				05/30/17 11:21
Radium 226	9.2	pCi/L		90	80	120			
Lab ID: MB-RA226-8497	Method Blank				Run: G542M-2_170510A				05/30/17 11:21
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.09	pCi/L							
Radium 226 MDC	0.1	pCi/L							
Lab ID: C17040837-001CMS	Sample Matrix Spike				Run: G542M-2_170510A				05/30/17 11:21
Radium 226	16	pCi/L		80	70	130			
Lab ID: C17040837-001CMSD	Sample Matrix Spike Duplicate				Run: G542M-2_170510A				05/30/17 11:21
Radium 226	17	pCi/L		83	70	130	3.6	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 06/06/17
Work Order: B17050467

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5498
Lab ID: LCS-228-RA226-8497	Laboratory Control Sample				Run: TENNELEC-3_170510B				05/22/17 14:28
Radium 228	10	pCi/L		103	80	120			
Lab ID: MB-RA226-8497	Method Blank				Run: TENNELEC-3_170510B				05/22/17 14:28
Radium 228	-0.3	pCi/L							U
Radium 228 precision (±)	1	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: C17050117-003CMS	Sample Matrix Spike				Run: TENNELEC-3_170510B				05/22/17 14:28
Radium 228	21	pCi/L		99	70	130			
Lab ID: C17050117-003CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170510B				05/22/17 14:28
Radium 228	19	pCi/L		87	70	130	12	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17050467

Login completed by: Cindy Rohrer
Date Received: 5/4/2017
Reviewed by: BL2000\tedwards
Received by: rs4
Reviewed Date: 5/7/2017
Carrier name: Return-UPS NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 1.4°C and shipping container 2 was 2.2°C. The temperature of the sample(s) for shipping container 3 was -1.0°C.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy, #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

(Three coolers)
* No temp. blank sent with small cooler.

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SFL MW-3	5/2/17	0935	4	W	X	X			B17050467-001
2	SFL MW-4		1038							002
3	MNW-18		1238							003
4	MNW-17		1437							004
5	MNW-16		1609							005
6	MNW-15		1751							006
7	MNW-11		1817							007
8	EQBK-SCM-50217		1845							008
9	DUP-1		—							009
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	5/3/17 @ 0900	Brian Gieselman			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					5/4/17 9:30	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17050604 Quote ID: B3997 - CCRR

Project Name: TMPA 6706150060

Energy Laboratories Inc Billings MT received the following 13 samples for Texas Municipal Power Agency on 5/5/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17050604-001	SFL MW-2	05/03/17 10:06	05/05/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B17050604-002	SFL MW-5	05/03/17 11:10	05/05/17	Ground Water	Same As Above
B17050604-003	SSP/APMW-1	05/03/17 14:20	05/05/17	Ground Water	Same As Above
B17050604-004	SFL MW-6	05/03/17 14:22	05/05/17	Ground Water	Same As Above
B17050604-005	SSP MW-2	05/03/17 15:45	05/05/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Solids, Total Dissolved
B17050604-006	AP MW-3	05/03/17 16:16	05/05/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B17050604-007	EQBK-SCM-050317	05/03/17 16:50	05/05/17	Ground Water	Same As Above
B17050604-008	APMW-1D	05/04/17 8:57	05/05/17	Ground Water	Same As Above
B17050604-009	APMW-5	05/04/17 11:01	05/05/17	Ground Water	Same As Above
B17050604-010	APMW-4	05/04/17 12:56	05/05/17	Ground Water	Same As Above

ANALYTICAL SUMMARY REPORT

B17050604-011	DUP-2	05/04/17 0:00	05/05/17	Ground Water	Same As Above
B17050604-012	DUP-3	05/04/17 0:00	05/05/17	Ground Water	Same As Above
B17050604-013	EQBK-BJG-50417	05/04/17 13:54	05/05/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA 6706150060
Work Order: B17050604

Revised Date: 12/21/17
Report Date: 05/31/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The laboratory was unable to lower the reporting limit for Antimony to 0.006 mg/L for the following samples:

Sample	Revised Reporting Limit
EQBK-SCM-050317 (B17050604-007)	0.02 mg/L
APMW-1D (B17050604-008)	0.04 mg/L
EQBK-BJG-50417 (B17050604-013)	0.02 mg/L

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-001
Client Sample ID: SFL MW-2

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 10:06
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	806	mg/L	D	2		E200.7	05/11/17 00:11 / rlh
Magnesium	122	mg/L		1		E200.7	05/11/17 00:11 / rlh
Potassium	47	mg/L		1		E200.7	05/11/17 00:11 / rlh
Sodium	1610	mg/L	D	8		E200.7	05/11/17 00:11 / rlh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	05/05/17 19:28 / pjw
Solids, Total Dissolved TDS @ 180 C	6720	mg/L	D	90		A2540 C	05/08/17 11:07 / rik
INORGANICS							
Chloride	2760	mg/L	D	10		E300.0	05/10/17 03:21 / cjm
Sulfate	1810	mg/L	D	40		E300.0	05/10/17 03:21 / cjm
Fluoride	0.3	mg/L		0.1		A4500-F C	05/08/17 20:29 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/12/17 03:50 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 03:50 / jpv
Barium	0.02	mg/L		0.01		E200.7	05/11/17 00:11 / rlh
Beryllium	0.002	mg/L		0.001		E200.8	05/12/17 03:50 / jpv
Boron	0.55	mg/L	D	0.07		E200.7	05/11/17 00:11 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/12/17 03:50 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 03:50 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/12/17 03:50 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 03:50 / jpv
Lithium	0.53	mg/L	D	0.09		E200.7	05/11/17 00:11 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 15:52 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/12/17 03:50 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/12/17 03:50 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 03:50 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	2.1	pCi/L				E903.0	05/30/17 11:45 / eli-ca
Radium 226 precision (±)	0.46	pCi/L				E903.0	05/30/17 11:45 / eli-ca
Radium 226 MDC	0.16	pCi/L				E903.0	05/30/17 11:45 / eli-ca
Radium 228	5.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.0	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	7.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-002
Client Sample ID: SFL MW-5

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 11:10
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	883	mg/L	D	2		E200.7	05/11/17 00:29 / rlh
Magnesium	174	mg/L		1		E200.7	05/11/17 00:29 / rlh
Potassium	58	mg/L		1		E200.7	05/11/17 00:29 / rlh
Sodium	1680	mg/L	D	8		E200.7	05/11/17 00:29 / rlh
PHYSICAL PROPERTIES							
pH	4.8	s.u.	H	0.1		A4500-H B	05/05/17 19:33 / pjw
Solids, Total Dissolved TDS @ 180 C	7380	mg/L	D	90		A2540 C	05/08/17 11:07 / rik
INORGANICS							
Chloride	3040	mg/L	D	10		E300.0	05/10/17 03:40 / cjm
Sulfate	2150	mg/L	D	40		E300.0	05/10/17 03:40 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	05/08/17 20:35 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 12:04 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 04:17 / jpv
Barium	0.03	mg/L		0.01		E200.7	05/11/17 00:29 / rlh
Beryllium	0.012	mg/L		0.001		E200.8	05/13/17 12:04 / jpv
Boron	3.97	mg/L	D	0.07		E200.7	05/11/17 00:29 / rlh
Cadmium	0.005	mg/L		0.005		E200.8	05/12/17 04:17 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 04:17 / jpv
Cobalt	0.05	mg/L		0.02		E200.8	05/12/17 04:17 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 04:17 / jpv
Lithium	0.79	mg/L	D	0.09		E200.7	05/11/17 00:29 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 15:54 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 12:04 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/12/17 04:17 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 04:17 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	2.1	pCi/L				E903.0	05/30/17 11:45 / eli-ca
Radium 226 precision (±)	0.46	pCi/L				E903.0	05/30/17 11:45 / eli-ca
Radium 226 MDC	0.16	pCi/L				E903.0	05/30/17 11:45 / eli-ca
Radium 228	7.8	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	1.7	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.0	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	9.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.8	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-003
Client Sample ID: SSP/APMW-1

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 14:20
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	681	mg/L		1		E200.7	05/11/17 00:33 / rlh
Magnesium	166	mg/L		1		E200.7	05/11/17 00:33 / rlh
Potassium	55	mg/L		1		E200.7	05/11/17 00:33 / rlh
Sodium	1390	mg/L	D	4		E200.7	05/11/17 00:33 / rlh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	05/05/17 19:36 / pjw
Solids, Total Dissolved TDS @ 180 C	6460	mg/L	D	90		A2540 C	05/08/17 11:07 / rik
INORGANICS							
Chloride	1550	mg/L	D	6		E300.0	05/10/17 04:00 / cjm
Sulfate	3050	mg/L	D	20		E300.0	05/10/17 04:00 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	05/08/17 20:38 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 12:08 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 04:20 / jpv
Barium	0.04	mg/L		0.01		E200.7	05/11/17 00:33 / rlh
Beryllium	ND	mg/L		0.001		E200.8	05/13/17 12:08 / jpv
Boron	0.81	mg/L		0.05		E200.7	05/11/17 00:33 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/12/17 04:20 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 04:20 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/12/17 04:20 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 04:20 / jpv
Lithium	1.50	mg/L	D	0.04		E200.7	05/11/17 00:33 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:24 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 12:08 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/12/17 04:20 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 04:20 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.26	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	0.13	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	1.3	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	0.70	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	1.5	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	0.7	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-004
Client Sample ID: SFL MW-6

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 14:22
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	955	mg/L	D	2		E200.7	05/11/17 00:36 / rlh
Magnesium	255	mg/L		1		E200.7	05/11/17 00:36 / rlh
Potassium	73	mg/L		1		E200.7	05/11/17 00:36 / rlh
Sodium	1750	mg/L	D	8		E200.7	05/11/17 00:36 / rlh
PHYSICAL PROPERTIES							
pH	4.1	s.u.	H	0.1		A4500-H B	05/05/17 19:38 / pjw
Solids, Total Dissolved TDS @ 180 C	8020	mg/L	D	90		A2540 C	05/08/17 11:07 / rik
INORGANICS							
Chloride	3560	mg/L	D	10		E300.0	05/10/17 04:19 / cjm
Sulfate	2260	mg/L	D	40		E300.0	05/10/17 04:19 / cjm
Fluoride	0.8	mg/L		0.1		A4500-F C	05/08/17 20:50 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 12:11 / jpv
Arsenic	0.02	mg/L		0.01		E200.8	05/12/17 04:24 / jpv
Barium	0.03	mg/L		0.01		E200.7	05/11/17 00:36 / rlh
Beryllium	0.054	mg/L		0.001		E200.8	05/13/17 12:11 / jpv
Boron	0.30	mg/L	D	0.07		E200.7	05/11/17 00:36 / rlh
Cadmium	0.010	mg/L		0.005		E200.8	05/12/17 04:24 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 04:24 / jpv
Cobalt	0.11	mg/L		0.02		E200.8	05/12/17 04:24 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 04:24 / jpv
Lithium	0.72	mg/L	D	0.09		E200.7	05/11/17 00:36 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:26 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 12:11 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/12/17 04:24 / jpv
Thallium	0.003	mg/L		0.002		E200.8	05/12/17 04:24 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	2.7	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	0.60	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	5.8	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	8.6	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-005
Client Sample ID: SSP MW-2

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 15:45
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	899	mg/L		1		E200.7	05/11/17 23:03 / rlh
Magnesium	209	mg/L		1		E200.7	05/11/17 23:03 / rlh
Potassium	62	mg/L		1		E200.7	05/11/17 23:03 / rlh
Sodium	1190	mg/L	D	4		E200.7	05/11/17 23:03 / rlh
PHYSICAL PROPERTIES							
pH	5.4	s.u.	H	0.1		A4500-H B	05/05/17 19:41 / pjw
Solids, Total Dissolved TDS @ 180 C	5960	mg/L	D	90		A2540 C	05/08/17 11:08 / rik
INORGANICS							
Chloride	2520	mg/L	D	6		E300.0	05/10/17 05:18 / cjm
Sulfate	2080	mg/L	D	20		E300.0	05/10/17 05:18 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	05/08/17 20:56 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 12:14 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 04:27 / jpv
Barium	0.06	mg/L		0.01		E200.7	05/11/17 23:03 / rlh
Beryllium	0.030	mg/L		0.001		E200.8	05/13/17 12:14 / jpv
Boron	0.50	mg/L		0.05		E200.7	05/11/17 23:03 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/12/17 04:27 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 04:27 / jpv
Cobalt	0.06	mg/L		0.02		E200.8	05/12/17 04:27 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 04:27 / jpv
Lithium	0.90	mg/L	D	0.04		E200.7	05/11/17 23:03 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:27 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 12:14 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/12/17 04:27 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 04:27 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-006
Client Sample ID: AP MW-3

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 16:16
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	139	mg/L		1		E200.7	05/11/17 23:06 / rlh
Magnesium	21	mg/L		1		E200.7	05/11/17 23:06 / rlh
Potassium	12	mg/L		1		E200.7	05/11/17 23:06 / rlh
Sodium	237	mg/L		1		E200.7	05/11/17 23:06 / rlh
PHYSICAL PROPERTIES							
pH	5.4	s.u.	H	0.1		A4500-H B	05/05/17 19:43 / pjw
Solids, Total Dissolved TDS @ 180 C	1300	mg/L	D	20		A2540 C	05/08/17 11:08 / rik
INORGANICS							
Chloride	148	mg/L		1		E300.0	05/10/17 06:16 / cjm
Sulfate	739	mg/L	D	4		E300.0	05/10/17 06:16 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	05/08/17 20:59 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 12:18 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 04:31 / jpv
Barium	0.02	mg/L		0.01		E200.8	05/12/17 04:31 / jpv
Beryllium	0.003	mg/L		0.001		E200.8	05/13/17 12:18 / jpv
Boron	3.73	mg/L		0.05		E200.7	05/11/17 23:06 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/12/17 04:31 / jpv
Chromium	ND	mg/L		0.01		E200.7	05/11/17 23:06 / rlh
Cobalt	0.05	mg/L		0.02		E200.7	05/11/17 23:06 / rlh
Lead	ND	mg/L		0.01		E200.8	05/12/17 04:31 / jpv
Lithium	0.05	mg/L		0.01		E200.7	05/11/17 23:06 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:29 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/11/17 23:06 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/12/17 04:31 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 04:31 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.67	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	2.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	0.88	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	2.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-007
Client Sample ID: EQBK-SCM-050317

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 16:50
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	05/11/17 23:10 / rlh
Magnesium	ND	mg/L		1		E200.7	05/11/17 23:10 / rlh
Potassium	ND	mg/L		1		E200.7	05/11/17 23:10 / rlh
Sodium	ND	mg/L		1		E200.7	05/11/17 23:10 / rlh
PHYSICAL PROPERTIES							
pH	5.8	s.u.	H	0.1		A4500-H B	05/05/17 19:46 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/08/17 11:08 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	05/10/17 06:35 / cjm
Sulfate	ND	mg/L		1		E300.0	05/10/17 06:35 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/08/17 21:08 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L	L	0.02		E200.7	05/11/17 23:10 / rlh
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 04:34 / jpv
Barium	ND	mg/L		0.01		E200.7	05/11/17 23:10 / rlh
Beryllium	ND	mg/L		0.001		E200.7	05/11/17 23:10 / rlh
Boron	ND	mg/L		0.05		E200.7	05/11/17 23:10 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/12/17 04:34 / jpv
Chromium	ND	mg/L		0.01		E200.7	05/11/17 23:10 / rlh
Cobalt	ND	mg/L		0.02		E200.7	05/11/17 23:10 / rlh
Lead	ND	mg/L		0.01		E200.8	05/12/17 04:34 / jpv
Lithium	ND	mg/L		0.01		E200.7	05/11/17 23:10 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:31 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/11/17 23:10 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/12/17 04:34 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 04:34 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.9	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	0.44	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	2.7	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.1	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	4.6	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
L - Lowest available reporting limit for the analytical method used.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-008
Client Sample ID: APMW-1D

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17 08:57
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	74	mg/L		1		E200.7	05/11/17 23:13 / rlh
Magnesium	13	mg/L		1		E200.7	05/11/17 23:13 / rlh
Potassium	11	mg/L		1		E200.7	05/11/17 23:13 / rlh
Sodium	317	mg/L		1		E200.7	05/11/17 23:13 / rlh
PHYSICAL PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	05/05/17 19:49 / pjw
Solids, Total Dissolved TDS @ 180 C	1240	mg/L	D	20		A2540 C	05/08/17 11:08 / rik
INORGANICS							
Chloride	227	mg/L		1		E300.0	05/10/17 06:55 / cjm
Sulfate	527	mg/L	D	4		E300.0	05/10/17 06:55 / cjm
Fluoride	0.7	mg/L		0.1		A4500-F C	05/08/17 21:11 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L	D	0.04		E200.7	05/11/17 23:13 / rlh
Arsenic	0.01	mg/L		0.01		E200.8	05/12/17 04:37 / jpv
Barium	0.01	mg/L		0.01		E200.7	05/11/17 23:13 / rlh
Beryllium	ND	mg/L		0.001		E200.7	05/11/17 23:13 / rlh
Boron	4.72	mg/L		0.05		E200.7	05/11/17 23:13 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/12/17 04:37 / jpv
Chromium	ND	mg/L		0.01		E200.7	05/11/17 23:13 / rlh
Cobalt	ND	mg/L		0.02		E200.7	05/11/17 23:13 / rlh
Lead	ND	mg/L		0.01		E200.8	05/12/17 04:37 / jpv
Lithium	0.03	mg/L		0.01		E200.7	05/11/17 23:13 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:33 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/11/17 23:13 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/12/17 04:37 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 04:37 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.50	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	2.0	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	0.93	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	2.5	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-009
Client Sample ID: APMW-5

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17 11:01
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	522	mg/L		1		E200.7	05/11/17 23:31 / rlh
Magnesium	116	mg/L		1		E200.7	05/11/17 23:31 / rlh
Potassium	43	mg/L		1		E200.7	05/11/17 23:31 / rlh
Sodium	662	mg/L	D	4		E200.7	05/11/17 23:31 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	05/05/17 19:51 / pjw
Solids, Total Dissolved TDS @ 180 C	4530	mg/L	D	40		A2540 C	05/08/17 11:08 / rik
INORGANICS							
Chloride	472	mg/L	D	6		E300.0	05/10/17 07:14 / cjm
Sulfate	2930	mg/L	D	20		E300.0	05/10/17 07:14 / cjm
Fluoride	1.2	mg/L		0.1		A4500-F C	05/09/17 10:32 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 02:28 / jpv
Arsenic	0.02	mg/L		0.01		E200.8	05/12/17 05:01 / jpv
Barium	0.02	mg/L		0.01		E200.7	05/11/17 23:31 / rlh
Beryllium	0.084	mg/L		0.001		E200.8	05/13/17 02:28 / jpv
Boron	3.39	mg/L		0.05		E200.7	05/11/17 23:31 / rlh
Cadmium	0.009	mg/L		0.005		E200.8	05/12/17 05:01 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 05:01 / jpv
Cobalt	0.19	mg/L		0.02		E200.8	05/13/17 02:28 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 05:01 / jpv
Lithium	0.50	mg/L	D	0.04		E200.7	05/11/17 23:31 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:35 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 02:28 / jpv
Selenium	0.01	mg/L		0.01		E200.8	05/12/17 05:01 / jpv
Thallium	0.002	mg/L		0.002		E200.8	05/12/17 05:01 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.79	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	2.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	0.87	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.1	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	2.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-010
Client Sample ID: APMW-4

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17 12:56
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	532	mg/L		1		E200.7	05/11/17 23:48 / rlh
Magnesium	122	mg/L		1		E200.7	05/11/17 23:48 / rlh
Potassium	48	mg/L		1		E200.7	05/11/17 23:48 / rlh
Sodium	534	mg/L	D	2		E200.7	05/11/17 23:48 / rlh
PHYSICAL PROPERTIES							
pH	6.0	s.u.	H	0.1		A4500-H B	05/05/17 19:54 / pjw
Solids, Total Dissolved TDS @ 180 C	3930	mg/L	D	40		A2540 C	05/08/17 11:08 / rik
INORGANICS							
Chloride	505	mg/L	D	3		E300.0	05/10/17 07:34 / cjm
Sulfate	2330	mg/L	D	9		E300.0	05/10/17 07:34 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/09/17 11:20 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 02:31 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 05:21 / jpv
Barium	0.01	mg/L		0.01		E200.7	05/11/17 23:48 / rlh
Beryllium	ND	mg/L		0.001		E200.7	05/11/17 23:48 / rlh
Boron	2.07	mg/L		0.05		E200.7	05/11/17 23:48 / rlh
Cadmium	ND	mg/L		0.005		E200.7	05/11/17 23:48 / rlh
Chromium	ND	mg/L		0.01		E200.8	05/12/17 05:21 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/13/17 02:31 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 05:21 / jpv
Lithium	0.93	mg/L	D	0.02		E200.7	05/11/17 23:48 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:37 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/11/17 23:48 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/12/17 05:21 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 05:21 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.38	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	0.15	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	2.0	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.1	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	2.4	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-011
Client Sample ID: DUP-2

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	724	mg/L		1		E200.7	05/11/17 23:52 / rlh
Magnesium	182	mg/L		1		E200.7	05/11/17 23:52 / rlh
Potassium	51	mg/L		1		E200.7	05/11/17 23:52 / rlh
Sodium	1130	mg/L	D	4		E200.7	05/11/17 23:52 / rlh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	05/05/17 20:04 / pjw
Solids, Total Dissolved TDS @ 180 C	6490	mg/L	D	90		A2540 C	05/08/17 15:22 / rik
INORGANICS							
Chloride	1860	mg/L	D	6		E300.0	05/10/17 07:53 / cjm
Sulfate	2510	mg/L	D	20		E300.0	05/10/17 07:53 / cjm
Fluoride	0.7	mg/L		0.1		A4500-F C	05/09/17 11:27 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 02:35 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 05:24 / jpv
Barium	0.03	mg/L		0.01		E200.7	05/11/17 23:52 / rlh
Beryllium	0.119	mg/L		0.001		E200.8	05/13/17 02:35 / jpv
Boron	2.50	mg/L		0.05		E200.7	05/11/17 23:52 / rlh
Cadmium	0.073	mg/L		0.005		E200.8	05/12/17 05:24 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 05:24 / jpv
Cobalt	0.62	mg/L		0.02		E200.8	05/13/17 02:35 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 05:24 / jpv
Lithium	0.67	mg/L	D	0.04		E200.7	05/11/17 23:52 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:39 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 02:35 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/12/17 05:24 / jpv
Thallium	0.009	mg/L		0.002		E200.8	05/12/17 05:24 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	6.2	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 precision (±)	1.2	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	05/30/17 11:46 / eli-ca
Radium 228	20	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 precision (±)	3.8	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 226 + Radium 228	25.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	4.0	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-012
Client Sample ID: DUP-3

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	536	mg/L		1		E200.7	05/11/17 23:55 / rlh
Magnesium	119	mg/L		1		E200.7	05/11/17 23:55 / rlh
Potassium	42	mg/L		1		E200.7	05/11/17 23:55 / rlh
Sodium	682	mg/L	D	4		E200.7	05/11/17 23:55 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	05/05/17 20:09 / pjw
Solids, Total Dissolved TDS @ 180 C	4720	mg/L	D	40		A2540 C	05/08/17 15:22 / rik
INORGANICS							
Chloride	464	mg/L	D	6		E300.0	05/10/17 08:13 / cjm
Sulfate	2920	mg/L	D	20		E300.0	05/10/17 08:13 / cjm
Fluoride	1.2	mg/L		0.1		A4500-F C	05/09/17 11:37 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 02:38 / jpv
Arsenic	0.03	mg/L		0.01		E200.8	05/12/17 05:28 / jpv
Barium	0.01	mg/L		0.01		E200.7	05/11/17 23:55 / rlh
Beryllium	0.095	mg/L		0.001		E200.8	05/13/17 02:38 / jpv
Boron	3.42	mg/L		0.05		E200.7	05/11/17 23:55 / rlh
Cadmium	0.008	mg/L		0.005		E200.8	05/12/17 05:28 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/12/17 05:28 / jpv
Cobalt	0.20	mg/L		0.02		E200.8	05/13/17 02:38 / jpv
Lead	ND	mg/L		0.01		E200.8	05/12/17 05:28 / jpv
Lithium	0.52	mg/L	D	0.04		E200.7	05/11/17 23:55 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:41 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 02:38 / jpv
Selenium	0.01	mg/L		0.01		E200.8	05/12/17 05:28 / jpv
Thallium	0.002	mg/L		0.002		E200.8	05/12/17 05:28 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 precision (±)	0.29	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 228	2.4	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 precision (±)	0.91	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 226 + Radium 228	3.5	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050604-013
Client Sample ID: EQBK-BJG-50417

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17 13:54
DateReceived: 05/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	05/11/17 23:59 / rlh
Magnesium	ND	mg/L		1		E200.7	05/11/17 23:59 / rlh
Potassium	ND	mg/L		1		E200.7	05/11/17 23:59 / rlh
Sodium	ND	mg/L		1		E200.7	05/11/17 23:59 / rlh
PHYSICAL PROPERTIES							
pH	5.6	s.u.	H	0.1		A4500-H B	05/05/17 20:12 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/08/17 15:22 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	05/10/17 08:32 / cjm
Sulfate	ND	mg/L		1		E300.0	05/10/17 08:32 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/09/17 11:46 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L	L	0.02		E200.7	05/11/17 23:59 / rlh
Arsenic	ND	mg/L		0.01		E200.8	05/12/17 05:41 / jpv
Barium	ND	mg/L		0.01		E200.7	05/11/17 23:59 / rlh
Beryllium	ND	mg/L		0.001		E200.7	05/11/17 23:59 / rlh
Boron	ND	mg/L		0.05		E200.7	05/11/17 23:59 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/12/17 05:41 / jpv
Chromium	ND	mg/L		0.01		E200.7	05/11/17 23:59 / rlh
Cobalt	ND	mg/L		0.02		E200.7	05/11/17 23:59 / rlh
Lead	ND	mg/L		0.01		E200.8	05/12/17 05:41 / jpv
Lithium	ND	mg/L		0.01		E200.7	05/11/17 23:59 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/08/17 16:47 / mas
Molybdenum	ND	mg/L		0.05		E200.7	05/11/17 23:59 / rlh
Selenium	ND	mg/L		0.01		E200.8	05/12/17 05:41 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/12/17 05:41 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	05/30/17 13:27 / eli-ca
Radium 226 precision (±)	0.11	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 228	3.3	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 precision (±)	0.95	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	05/24/17 10:30 / eli-ca
Radium 226 + Radium 228	3.3	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
L - Lowest available reporting limit for the analytical method used.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 05/31/17
Work Order: B17050604

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8500
Lab ID: LCS-RA226-8500	Laboratory Control Sample				Run: G5000W_170516B				05/30/17 11:45
Radium 226	8.3	pCi/L		82	80	120			
Lab ID: MB-RA226-8500	Method Blank				Run: G5000W_170516B				05/30/17 11:45
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17050604-001CMS	Sample Matrix Spike				Run: G5000W_170516B				05/30/17 11:45
Radium 226	19	pCi/L		82	70	130			
Lab ID: B17050604-001CMSD	Sample Matrix Spike Duplicate				Run: G5000W_170516B				05/30/17 11:45
Radium 226	17	pCi/L		76	70	130	6.7	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 05/31/17
Work Order: B17050604

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5500
Lab ID: LCS-228-RA226-8500	Laboratory Control Sample				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	9.8	pCi/L		91	80	120			
Lab ID: MB-RA226-8500	Method Blank				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	0.5	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: B17050604-013CMS	Sample Matrix Spike				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	20	pCi/L		82	70	130			
Lab ID: B17050604-013CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	20	pCi/L		80	70	130	2.0	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 109290
Lab ID: MB-109290		Method Blank				Run: BAL #SD-15_170508D				05/08/17 11:05
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-109290		Laboratory Control Sample				Run: BAL #SD-15_170508D				05/08/17 11:05
Solids, Total Dissolved TDS @ 180 C		976	mg/L	10	99	90	110			
Lab ID: B17050573-001A DUP		Sample Duplicate				Run: BAL #SD-15_170508D				05/08/17 11:05
Solids, Total Dissolved TDS @ 180 C		213	mg/L	10				3.0	5	
Lab ID: B17050604-001A DUP		Sample Duplicate				Run: BAL #SD-15_170508D				05/08/17 11:07
Solids, Total Dissolved TDS @ 180 C		6720	mg/L	85				0.0	5	
Method: A2540 C										Batch: 109303
Lab ID: MB-109303		Method Blank				Run: BAL #SD-15_170508E				05/08/17 15:21
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-109303		Laboratory Control Sample				Run: BAL #SD-15_170508E				05/08/17 15:22
Solids, Total Dissolved TDS @ 180 C		988	mg/L	10	99	90	110			
Lab ID: B17050604-011A DUP		Sample Duplicate				Run: BAL #SD-15_170508E				05/08/17 15:22
Solids, Total Dissolved TDS @ 180 C		6380	mg/L	87				1.7	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170508B	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/08/17 16:59	
Fluoride		1.01	mg/L	0.10	101	90	110			
Method: **A4500-F C**									Batch: R279515	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170508B			05/08/17 16:54	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170508B			05/08/17 16:56	
Fluoride		0.980	mg/L	0.10	98	90	110			
Lab ID: **B17050599-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170508B			05/08/17 20:21	
Fluoride		1.10	mg/L	0.10	102	80	120			
Lab ID: **B17050599-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170508B			05/08/17 20:24	
Fluoride		1.10	mg/L	0.10	102	80	120	0.0	10	
Method: **A4500-F C**									Analytical Run: MAN-TECH_170509A	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/09/17 10:18	
Fluoride		1.03	mg/L	0.10	103	90	110			
Method: **A4500-F C**									Batch: R279548	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170509A			05/09/17 10:13	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170509A			05/09/17 10:16	
Fluoride		1.01	mg/L	0.10	101	90	110			
Lab ID: **B17050604-009AMS**		Sample Matrix Spike				Run: MAN-TECH_170509A			05/09/17 10:44	
Fluoride		1.61	mg/L	0.10	42	80	120			S
Lab ID: **B17050604-009AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170509A			05/09/17 10:54	
Fluoride		1.59	mg/L	0.10	40	80	120	1.2	10	S

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170505A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								05/05/17 09:02	
pH		7.98	s.u.	0.10	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								05/05/17 18:51	
pH		7.04	s.u.	0.10	101	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								05/05/17 19:56	
pH		7.03	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R279325	
Lab ID: **B17050604-001ADUP**	Sample Duplicate					Run: PHSC _101-B_170505A			05/05/17 19:30	
pH		6.62	s.u.	0.10				0.2	3	
Lab ID: **B17050604-011ADUP**	Sample Duplicate					Run: PHSC _101-B_170505A			05/05/17 20:07	
pH		4.52	s.u.	0.10				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170510A	
Lab ID: ICV	7	Continuing Calibration Verification Standard							05/10/17 11:38	
Barium		2.50	mg/L	0.10	100	95	105			
Boron		2.51	mg/L	0.10	100	95	105			
Calcium		24.7	mg/L	1.0	99	95	105			
Lithium		1.23	mg/L	0.10	99	95	105			
Magnesium		24.3	mg/L	1.0	97	95	105			
Potassium		24.8	mg/L	1.0	99	95	105			
Sodium		24.8	mg/L	1.0	99	95	105			
Method: E200.7									Batch: 109251	
Lab ID: MB-109251	12	Method Blank				Run: ICP203-B_170510A			05/10/17 23:22	
Antimony		ND	mg/L	0.02						
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: LCS-109251	12	Laboratory Control Sample				Run: ICP203-B_170510A			05/10/17 23:25	
Antimony		0.463	mg/L	0.10	93	85	115			
Barium		0.471	mg/L	0.10	94	85	115			
Beryllium		0.244	mg/L	0.010	98	85	115			
Boron		0.446	mg/L	0.10	89	85	115			
Calcium		24.5	mg/L	1.0	98	85	115			
Chromium		0.483	mg/L	0.050	97	85	115			
Cobalt		0.470	mg/L	0.050	94	85	115			
Lithium		0.484	mg/L	0.10	97	85	115			
Magnesium		24.6	mg/L	1.0	99	85	115			
Molybdenum		0.475	mg/L	0.10	95	85	115			
Potassium		24.2	mg/L	1.0	97	85	115			
Sodium		24.7	mg/L	1.0	99	85	115			
Lab ID: B17050604-001BMS3	12	Sample Matrix Spike				Run: ICP203-B_170510A			05/11/17 00:22	
Antimony		0.471	mg/L	0.41	94	70	130			
Barium		0.525	mg/L	0.050	101	70	130			
Beryllium		0.268	mg/L	0.0029	106	70	130			
Boron		1.04	mg/L	0.068	98	70	130			
Calcium		810	mg/L	1.6		70	130			A
Chromium		0.494	mg/L	0.041	99	70	130			
Cobalt		0.562	mg/L	0.10	112	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 109251	
Lab ID: B17050604-001BMS3	12	Sample Matrix Spike				Run: ICP203-B_170510A			05/11/17 00:22	
Lithium		1.00	mg/L	0.10	94	70	130			
Magnesium		145	mg/L	1.5		70	130			A
Molybdenum		0.579	mg/L	0.14	116	70	130			
Potassium		76.1	mg/L	1.4	116	70	130			
Sodium		1590	mg/L	8.4		70	130			A
Lab ID: B17050604-001BMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170510A			05/11/17 00:25	
Antimony		ND	mg/L	0.41	0	70	130		20	O
Barium		0.516	mg/L	0.050	99	70	130	1.9	20	
Beryllium		0.270	mg/L	0.0029	107	70	130	0.8	20	
Boron		1.10	mg/L	0.068	110	70	130	5.7	20	
Calcium		809	mg/L	1.6		70	130	0.1	20	A
Chromium		0.498	mg/L	0.041	100	70	130	1.0	20	
Cobalt		0.605	mg/L	0.10	121	70	130	7.3	20	
Lithium		1.01	mg/L	0.10	96	70	130	0.6	20	
Magnesium		146	mg/L	1.5		70	130	0.9	20	A
Molybdenum		0.560	mg/L	0.14	112	70	130	3.2	20	
Potassium		70.1	mg/L	1.4	92	70	130	8.2	20	
Sodium		1550	mg/L	8.4		70	130	2.6	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

O - Diluted out.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170511A	
Lab ID: ICV	13	Continuing Calibration Verification Standard							05/11/17 13:24	
Antimony		2.50	mg/L	0.050	100	95	105			
Barium		2.45	mg/L	0.10	98	95	105			
Beryllium		1.24	mg/L	0.010	99	95	105			
Boron		2.46	mg/L	0.10	99	95	105			
Cadmium		2.47	mg/L	0.010	99	95	105			
Calcium		25.8	mg/L	1.0	103	95	105			
Chromium		2.43	mg/L	0.050	97	95	105			
Cobalt		2.46	mg/L	0.020	98	95	105			
Lithium		1.30	mg/L	0.10	104	95	105			
Magnesium		25.6	mg/L	1.0	102	95	105			
Molybdenum		2.50	mg/L	0.10	100	95	105			
Potassium		25.8	mg/L	1.0	103	95	105			
Sodium		25.8	mg/L	1.0	103	95	105			
Method: E200.7									Batch: 109251	
Lab ID: MB-109251	12	Method Blank				Run: ICP203-B_170511A			05/11/17 22:59	
Antimony		ND	mg/L	0.02						
Barium		0.0006	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Method: E200.7									Batch: 109252	
Lab ID: MB-109252	13	Method Blank				Run: ICP203-B_170511A			05/11/17 23:17	
Antimony		ND	mg/L	0.02						
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		0.03	mg/L	0.03						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Batch: 109252	
Lab ID: **LCS-109252**	13 Laboratory Control Sample					Run: ICP203-B_170511A			05/11/17 23:27	
Antimony		0.513	mg/L	0.10	103	85	115			
Barium		0.513	mg/L	0.10	103	85	115			
Beryllium		0.263	mg/L	0.010	105	85	115			
Boron		0.479	mg/L	0.10	96	85	115			
Cadmium		0.262	mg/L	0.010	105	85	115			
Calcium		26.4	mg/L	1.0	105	85	115			
Chromium		0.507	mg/L	0.050	101	85	115			
Cobalt		0.520	mg/L	0.050	104	85	115			
Lithium		0.522	mg/L	0.10	104	85	115			
Magnesium		26.2	mg/L	1.0	105	85	115			
Molybdenum		0.527	mg/L	0.10	105	85	115			
Potassium		26.0	mg/L	1.0	104	85	115			
Sodium		26.6	mg/L	1.0	106	85	115			
Lab ID: **B17050604-009BMS3**	13 Sample Matrix Spike					Run: ICP203-B_170511A			05/11/17 23:41	
Antimony		0.666	mg/L	0.21	133	70	130			S
Barium		0.527	mg/L	0.050	102	70	130			
Beryllium		0.359	mg/L	0.0014	106	70	130			
Boron		4.04	mg/L	0.050		70	130			A
Cadmium		0.266	mg/L	0.0099	102	70	130			
Calcium		562	mg/L	1.0		70	130			A
Chromium		0.484	mg/L	0.020	97	70	130			
Cobalt		0.722	mg/L	0.052	99	70	130			
Lithium		1.08	mg/L	0.10	115	70	130			
Magnesium		144	mg/L	1.0		70	130			A
Molybdenum		0.552	mg/L	0.071	110	70	130			
Potassium		70.4	mg/L	1.0	109	70	130			
Sodium		718	mg/L	4.2		70	130			A
Lab ID: **B17050604-009BMSD**	13 Sample Matrix Spike Duplicate					Run: ICP203-B_170511A			05/11/17 23:45	
Antimony		0.779	mg/L	0.21	156	70	130	16	20	S
Barium		0.530	mg/L	0.050	103	70	130	0.6	20	
Beryllium		0.363	mg/L	0.0014	107	70	130	1.2	20	
Boron		4.02	mg/L	0.050		70	130	0.3	20	A
Cadmium		0.278	mg/L	0.0099	107	70	130	4.3	20	
Calcium		571	mg/L	1.0		70	130	1.6	20	A
Chromium		0.525	mg/L	0.020	105	70	130	8.0	20	
Cobalt		0.727	mg/L	0.052	100	70	130	0.7	20	
Lithium		1.07	mg/L	0.10	114	70	130	0.5	20	
Magnesium		147	mg/L	1.0		70	130	2.1	20	A
Molybdenum		0.511	mg/L	0.071	102	70	130	7.8	20	
Potassium		70.2	mg/L	1.0	109	70	130	0.2	20	
Sodium		726	mg/L	4.2		70	130	1.1	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS206-B_170511A	
Lab ID: **QCS**	11	Initial Calibration Verification Standard							05/11/17 22:04	
Antimony		0.0457	mg/L	0.050	91	90	110			
Arsenic		0.0520	mg/L	0.0050	104	90	110			
Barium		0.0468	mg/L	0.10	94	90	110			
Beryllium		0.0234	mg/L	0.0010	94	90	110			
Cadmium		0.0255	mg/L	0.0010	102	90	110			
Chromium		0.0515	mg/L	0.010	103	90	110			
Cobalt		0.0485	mg/L	0.010	97	90	110			
Lead		0.0475	mg/L	0.010	95	90	110			
Molybdenum		0.0454	mg/L	0.0050	91	90	110			
Selenium		0.0511	mg/L	0.0050	102	90	110			
Thallium		0.0484	mg/L	0.10	97	90	110			
Method: **E200.8**									Batch: 109251	
Lab ID: **MB-109251**	11	Method Blank				Run: ICPMS206-B_170511A			05/12/17 02:53	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		0.00009	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		0.00002	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00004	mg/L	7E-06						
Lab ID: **LCS-109251**	11	Laboratory Control Sample				Run: ICPMS206-B_170511A			05/12/17 03:00	
Antimony		0.452	mg/L	0.0010	90	85	115			
Arsenic		0.477	mg/L	0.0010	95	85	115			
Barium		0.443	mg/L	0.050	89	85	115			
Beryllium		0.216	mg/L	0.0010	86	85	115			
Cadmium		0.239	mg/L	0.0010	95	85	115			
Chromium		0.452	mg/L	0.0050	91	85	115			
Cobalt		0.429	mg/L	0.0050	86	85	115			
Lead		0.438	mg/L	0.0010	88	85	115			
Molybdenum		0.435	mg/L	0.0010	87	85	115			
Selenium		0.461	mg/L	0.0010	92	85	115			
Thallium		0.448	mg/L	0.00050	90	85	115			
Lab ID: **B17050604-001BMS3**	11	Sample Matrix Spike				Run: ICPMS206-B_170511A			05/12/17 03:54	
Antimony		0.476	mg/L	0.0010	95	70	130			
Arsenic		0.493	mg/L	0.0016	99	70	130			
Barium		0.496	mg/L	0.050	95	70	130			
Beryllium		0.236	mg/L	0.0010	94	70	130			
Cadmium		0.246	mg/L	0.0010	97	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 109251
Lab ID: B17050604-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170511A				05/12/17 03:54
Chromium		0.497	mg/L	0.0050	99	70	130			
Cobalt		0.486	mg/L	0.0050	94	70	130			
Lead		0.469	mg/L	0.0010	94	70	130			
Molybdenum		0.473	mg/L	0.0010	94	70	130			
Selenium		0.454	mg/L	0.0036	91	70	130			
Thallium		0.467	mg/L	0.00050	93	70	130			
Lab ID: B17050604-001BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170511A				05/12/17 03:57
Antimony		0.459	mg/L	0.0010	92	70	130	3.6	20	
Arsenic		0.529	mg/L	0.0016	106	70	130	7.0	20	
Barium		0.473	mg/L	0.050	90	70	130	4.8	20	
Beryllium		0.220	mg/L	0.0010	87	70	130	6.9	20	
Cadmium		0.241	mg/L	0.0010	96	70	130	1.7	20	
Chromium		0.462	mg/L	0.0050	92	70	130	7.1	20	
Cobalt		0.465	mg/L	0.0050	90	70	130	4.5	20	
Lead		0.443	mg/L	0.0010	89	70	130	5.7	20	
Molybdenum		0.452	mg/L	0.0010	90	70	130	4.5	20	
Selenium		0.467	mg/L	0.0036	93	70	130	3.0	20	
Thallium		0.444	mg/L	0.00050	89	70	130	5.1	20	
Method: E200.8										Batch: 109252
Lab ID: MB-109252	10	Method Blank				Run: ICPMS206-B_170511A				05/12/17 04:57
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00002	mg/L	7E-06						
Lab ID: LCS-109252	10	Laboratory Control Sample				Run: ICPMS206-B_170511A				05/12/17 05:04
Antimony		0.458	mg/L	0.0010	92	85	115			
Arsenic		0.494	mg/L	0.0010	99	85	115			
Beryllium		0.216	mg/L	0.0010	87	85	115			
Cadmium		0.244	mg/L	0.0010	97	85	115			
Chromium		0.473	mg/L	0.0050	95	85	115			
Cobalt		0.443	mg/L	0.0050	89	85	115			
Lead		0.454	mg/L	0.0010	91	85	115			
Molybdenum		0.449	mg/L	0.0010	90	85	115			
Selenium		0.475	mg/L	0.0010	95	85	115			
Thallium		0.467	mg/L	0.00050	93	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 109252
Lab ID: B17050604-009BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_170511A				05/12/17 05:08
Antimony		0.454	mg/L	0.0010	91	70	130			
Arsenic		0.477	mg/L	0.0010	90	70	130			
Beryllium		0.292	mg/L	0.0010	86	70	130			
Cadmium		0.241	mg/L	0.0010	93	70	130			
Chromium		0.451	mg/L	0.0050	90	70	130			
Cobalt		0.610	mg/L	0.0050	89	70	130			
Lead		0.449	mg/L	0.0010	89	70	130			
Molybdenum		0.447	mg/L	0.0010	89	70	130			
Selenium		0.485	mg/L	0.0018	95	70	130			
Thallium		0.449	mg/L	0.00050	89	70	130			
Lab ID: B17050604-009BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170511A				05/12/17 05:11
Antimony		0.482	mg/L	0.0010	96	70	130	6.0	20	
Arsenic		0.516	mg/L	0.0010	98	70	130	8.0	20	
Beryllium		0.308	mg/L	0.0010	93	70	130	5.6	20	
Cadmium		0.240	mg/L	0.0010	92	70	130	0.1	20	
Chromium		0.478	mg/L	0.0050	95	70	130	5.9	20	
Cobalt		0.646	mg/L	0.0050	97	70	130	5.9	20	
Lead		0.465	mg/L	0.0010	93	70	130	3.5	20	
Molybdenum		0.474	mg/L	0.0010	95	70	130	5.8	20	
Selenium		0.498	mg/L	0.0018	97	70	130	2.5	20	
Thallium		0.465	mg/L	0.00050	93	70	130	3.6	20	
Lab ID: B17050631-001AMS3	10	Sample Matrix Spike				Run: ICPMS206-B_170511A				05/12/17 05:48
Antimony		0.459	mg/L	0.0010	92	70	130			
Arsenic		0.497	mg/L	0.0010	99	70	130			
Beryllium		0.211	mg/L	0.0010	85	70	130			
Cadmium		0.243	mg/L	0.0010	97	70	130			
Chromium		0.462	mg/L	0.0050	92	70	130			
Cobalt		0.435	mg/L	0.0050	87	70	130			
Lead		0.454	mg/L	0.0010	91	70	130			
Molybdenum		0.446	mg/L	0.0010	89	70	130			
Selenium		0.475	mg/L	0.0010	95	70	130			
Thallium		0.459	mg/L	0.00050	92	70	130			
Lab ID: B17050631-001AMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170511A				05/12/17 05:51
Antimony		0.457	mg/L	0.0010	91	70	130	0.3	20	
Arsenic		0.506	mg/L	0.0010	101	70	130	1.7	20	
Beryllium		0.212	mg/L	0.0010	85	70	130	0.0	20	
Cadmium		0.239	mg/L	0.0010	96	70	130	1.8	20	
Chromium		0.467	mg/L	0.0050	93	70	130	1.1	20	
Cobalt		0.437	mg/L	0.0050	87	70	130	0.4	20	
Lead		0.450	mg/L	0.0010	90	70	130	0.7	20	
Molybdenum		0.444	mg/L	0.0010	89	70	130	0.6	20	
Selenium		0.483	mg/L	0.0010	97	70	130	1.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 05/31/17

Project: TMPA 6706150060

Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 109252
Lab ID: **B17050631-001AMSD**	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170511A				05/12/17 05:51
Thallium		0.464	mg/L	0.00050	93	70	130	1.0	20	
Method: **E200.8**										Analytical Run: ICPMS206-B_170512A
Lab ID: **QCS**	4	Initial Calibration Verification Standard								05/13/17 00:39
Antimony		0.0494	mg/L	0.050	99	90	110			
Beryllium		0.0248	mg/L	0.0010	99	90	110			
Cobalt		0.0513	mg/L	0.010	103	90	110			
Molybdenum		0.0473	mg/L	0.0050	95	90	110			
Lab ID: **QCS**	4	Initial Calibration Verification Standard								05/13/17 06:00
Antimony		0.0492	mg/L	0.050	98	90	110			
Beryllium		0.0255	mg/L	0.0010	102	90	110			
Cobalt		0.0522	mg/L	0.010	104	90	110			
Molybdenum		0.0481	mg/L	0.0050	96	90	110			
Method: **E200.8**										Batch: 109251
Lab ID: **MB-109251**	4	Method Blank				Run: ICPMS206-B_170512A				05/13/17 11:41
Antimony		ND	mg/L	0.00004						
Beryllium		ND	mg/L	0.00008						
Cobalt		ND	mg/L	0.00002						
Molybdenum		ND	mg/L	0.00003						
Method: **E200.8**										Batch: 109252
Lab ID: **MB-109252**	4	Method Blank				Run: ICPMS206-B_170512A				05/13/17 02:21
Antimony		ND	mg/L	0.00004						
Beryllium		ND	mg/L	0.00008						
Cobalt		ND	mg/L	0.00002						
Molybdenum		ND	mg/L	0.00003						

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency
Report Date: 05/31/17

Project: TMPA 6706150060
Work Order: B17050604

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170508A	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/08/17 14:18	
Mercury		0.00216	mg/L	0.00010	108	90	110			
Method: **E245.1**									Batch: 109273	
Lab ID: **MB-109273**		Method Blank				Run: HGCV202-B_170508A			05/08/17 15:43	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-109273**		Laboratory Control Sample				Run: HGCV202-B_170508A			05/08/17 15:45	
Mercury		0.00224	mg/L	0.00010	112	85	115			
Lab ID: **B17050467-001BMS**		Sample Matrix Spike				Run: HGCV202-B_170508A			05/08/17 15:48	
Mercury		0.00377	mg/L	0.00010	89	70	130			
Lab ID: **B17050467-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170508A			05/08/17 15:50	
Mercury		0.00375	mg/L	0.00010	89	70	130	0.3	30	
Lab ID: **B17050604-013BMS**		Sample Matrix Spike				Run: HGCV202-B_170508A			05/08/17 16:49	
Mercury		0.00208	mg/L	0.00010	104	70	130			
Lab ID: **B17050604-013BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170508A			05/08/17 16:51	
Mercury		0.00209	mg/L	0.00010	104	70	130	0.3	30	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency

B17050604

Login completed by: Tabitha Edwards
Date Received: 5/5/2017

Reviewed by: BL2000\lcadreau
Received by: qej

Reviewed Date: 5/9/2017
Carrier name: Return-UPS NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 0.8°C, shipping container 2 was 0.8°C, shipping container 3 was 0.5°C and shipping container 4 was 1.8°C.

All containers for samples SSP-MW-4, SSP-MW-3, EQBK-SCM-050417 and only the 2-2 Liter Plastic Nitric preserved containers for SSP-MW-2 were not received with this shipment. One cooler was lost in transit. Greg Seifert was notified. Proceeded with analysis on all other samples received per Shari Endy, Energy Laboratories Project Manager.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒Yes ☐No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SFL MW-2	5/3/17	1006	4	W	X	X			B17050068-001
2	SFL MW-5		1110							002
3	SSP/AP MW-1		1420							003
4	SFL MW-6		1422							004
5	SSP MW-2		1545							005
6	AP MW-3		1616							006
7	EQBK-SCM-050317	↓	1650							007
8	AP MW-1D	5/4/17	0857							008
9	SSP MW-4		0955							Not Received
10	AP MW-5	↓	1101	↓	↓	↓	↓			009

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	5/4/17 @ 1700	Brian Gieselman	Winnie Yates	5/5/17 09:50	
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	Quote / Bottle Order

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	BG/SM
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒Yes ☐No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SSP MW-3	5/4/17	1125	4	W	X	X	Not Received		B17050604-
2	EQBK-SCM-050417		1255					Not Received		
3	AP MW-4		1256					THE 5-9-17		B17050604-010
4	DUP-2		—							011
5	DUP-3		—							012
6	EQBK-BJG-50417	↓	1354	↓	↓	↓	↓			013
7										
8										
9										
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	5/4/17 @ 1700	Brian Gieselman	Quincee Jones	5/5/17 09:50	
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17050949 Quote ID: B3997 - CCRR

Project Name: TMPA 6706150060

Energy Laboratories Inc Billings MT received the following 4 samples for Texas Municipal Power Agency on 5/10/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17050949-001	SSP-MW-4	05/04/17 9:55	05/10/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B17050949-002	SSP-MW-3	05/04/17 11:25	05/10/17	Ground Water	Same As Above
B17050949-003	EQBK-SCM-050417	05/04/17 12:55	05/10/17	Ground Water	Same As Above
B17050949-004	SSP-MW-2	05/03/17 15:45	05/10/17	Ground Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA 6706150060
Work Order: B17050949

Revised Date: 12/21/17
Report Date: 05/31/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised 7/26/2017:

Per Brian Gieselman on 7/24/17, change Sample ID on B17050949-003 to EQBK-SCM-050417.

The report has been revised and replaces any previously issued report in its entirety.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050949-001
Client Sample ID: SSP-MW-4

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17 09:55
DateReceived: 05/10/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	455	mg/L		1		E200.7	05/15/17 18:07 / rlh
Magnesium	95	mg/L		1		E200.7	05/15/17 18:07 / rlh
Potassium	55	mg/L		1		E200.7	05/16/17 19:19 / rlh
Sodium	708	mg/L	D	4		E200.7	05/16/17 19:19 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	05/10/17 14:12 / pjw
Solids, Total Dissolved TDS @ 180 C	3990	mg/L		10		A2540 C	05/10/17 15:16 / mnh
INORGANICS							
Chloride	1120	mg/L	D	6		E300.0	05/12/17 03:28 / cjm
Sulfate	1180	mg/L	D	20		E300.0	05/12/17 03:28 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/16/17 10:13 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 09:33 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/13/17 09:33 / jpv
Barium	0.03	mg/L		0.01		E200.8	05/13/17 09:33 / jpv
Beryllium	ND	mg/L		0.001		E200.8	05/13/17 09:33 / jpv
Boron	1.47	mg/L		0.05		E200.7	05/15/17 18:07 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/13/17 09:33 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/13/17 09:33 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/13/17 09:33 / jpv
Lead	ND	mg/L		0.01		E200.8	05/13/17 09:33 / jpv
Lithium	0.87	mg/L	D	0.04		E200.7	05/16/17 19:19 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/12/17 12:37 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 09:33 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/13/17 09:33 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/13/17 09:33 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.2	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 precision (±)	0.30	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 228	3.3	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 226 + Radium 228	4.4	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050949-002
Client Sample ID: SSP-MW-3

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17 11:25
DateReceived: 05/10/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	694	mg/L		1		E200.7	05/16/17 19:23 / rlh
Magnesium	176	mg/L		1		E200.7	05/16/17 19:23 / rlh
Potassium	47	mg/L		1		E200.7	05/16/17 19:23 / rlh
Sodium	1050	mg/L	D	4		E200.7	05/16/17 19:23 / rlh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	05/10/17 14:17 / pjw
Solids, Total Dissolved TDS @ 180 C	6670	mg/L	D	100		A2540 C	05/10/17 13:46 / mnh
INORGANICS							
Chloride	1860	mg/L	D	6		E300.0	05/12/17 04:27 / cjm
Sulfate	2380	mg/L	D	20		E300.0	05/12/17 04:27 / cjm
Fluoride	0.7	mg/L		0.1		A4500-F C	05/16/17 10:20 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 09:36 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/13/17 09:36 / jpv
Barium	0.03	mg/L		0.01		E200.8	05/13/17 09:36 / jpv
Beryllium	0.120	mg/L		0.001		E200.8	05/13/17 09:36 / jpv
Boron	2.24	mg/L		0.05		E200.7	05/16/17 19:23 / rlh
Cadmium	0.081	mg/L		0.005		E200.8	05/13/17 09:36 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/13/17 09:36 / jpv
Cobalt	0.62	mg/L		0.02		E200.8	05/13/17 09:36 / jpv
Lead	ND	mg/L		0.01		E200.8	05/13/17 09:36 / jpv
Lithium	0.61	mg/L	D	0.04		E200.7	05/16/17 19:23 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/12/17 12:39 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 09:36 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/13/17 09:36 / jpv
Thallium	0.010	mg/L		0.002		E200.8	05/13/17 09:36 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	5.9	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 precision (±)	1.2	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 228	17	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 precision (±)	3.3	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 226 + Radium 228	23.2	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	3.5	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050949-003
Client Sample ID: EQBK-SCM-050417

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/04/17 12:55
DateReceived: 05/10/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	05/16/17 19:26 / rlh
Magnesium	ND	mg/L		1		E200.7	05/16/17 19:26 / rlh
Potassium	ND	mg/L		1		E200.7	05/16/17 19:26 / rlh
Sodium	ND	mg/L		1		E200.7	05/16/17 19:26 / rlh
PHYSICAL PROPERTIES							
pH	5.4	s.u.	H	0.1		A4500-H B	05/10/17 14:20 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/10/17 13:46 / mnh
INORGANICS							
Chloride	ND	mg/L		1		E300.0	05/12/17 04:46 / cjm
Sulfate	ND	mg/L		1		E300.0	05/12/17 04:46 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	05/16/17 10:27 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/13/17 09:40 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/13/17 09:40 / jpv
Barium	ND	mg/L		0.01		E200.8	05/13/17 09:40 / jpv
Beryllium	ND	mg/L		0.001		E200.8	05/13/17 09:40 / jpv
Boron	ND	mg/L		0.05		E200.7	05/16/17 19:26 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/13/17 09:40 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/13/17 09:40 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/13/17 09:40 / jpv
Lead	ND	mg/L		0.01		E200.8	05/13/17 09:40 / jpv
Lithium	ND	mg/L		0.01		E200.7	05/16/17 19:26 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/12/17 12:41 / mas
Molybdenum	ND	mg/L		0.05		E200.8	05/13/17 09:40 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/13/17 09:40 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/13/17 09:40 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.12	pCi/L	U			E903.0	05/30/17 13:27 / eli-ca
Radium 226 precision (±)	0.11	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 228	1.9	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 precision (±)	0.88	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 226 + Radium 228	2.0	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17050949-004
Client Sample ID: SSP-MW-2

Revised Date: 12/21/17
Report Date: 05/31/17
Collection Date: 05/03/17 15:45
DateReceived: 05/10/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.72	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 precision (±)	0.22	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 226 MDC	0.24	pCi/L				E903.0	05/30/17 13:27 / eli-ca
Radium 228	1.4	pCi/L	U			RA-05	05/24/17 12:03 / eli-ca
Radium 228 precision (±)	0.82	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	05/24/17 12:03 / eli-ca
Radium 226 + Radium 228	2.1	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	05/31/17 11:00 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: 109384
Lab ID: **MB-109384**		Method Blank				Run: BAL #SD-15_170510C				05/10/17 13:43
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: **LCS-109384**		Laboratory Control Sample				Run: BAL #SD-15_170510C				05/10/17 13:43
Solids, Total Dissolved TDS @ 180 C		986	mg/L	10	98	90	110			
Lab ID: **B17050949-001A DUP**		Sample Duplicate				Run: BAL #SD-15_170510C				05/10/17 13:45
Solids, Total Dissolved TDS @ 180 C		4000	mg/L	10						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170516A	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/16/17 09:56	
Fluoride		1.00	mg/L	0.10	100	90	110			
Method: **A4500-F C**									Batch: R279985	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170516A			05/16/17 09:51	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170516A			05/16/17 09:53	
Fluoride		1.02	mg/L	0.10	102	90	110			
Lab ID: **B17050867-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170516A			05/16/17 10:01	
Fluoride		4.65	mg/L	0.10	98	80	120			
Lab ID: **B17050867-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170516A			05/16/17 10:04	
Fluoride		4.70	mg/L	0.10	103	80	120	1.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170510A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								05/10/17 10:00	
pH		7.98	s.u.	0.10	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								05/10/17 13:31	
pH		7.03	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R279606	
Lab ID: **B17050949-001ADUP**	Sample Duplicate					Run: PHSC _101-B_170510A			05/10/17 14:15	
pH		6.50	s.u.	0.10				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170515A	
Lab ID: ICV	3	Continuing Calibration Verification Standard							05/15/17 12:13	
Boron		2.55	mg/L	0.10	102	95	105			
Calcium		26.0	mg/L	1.0	104	95	105			
Magnesium		26.0	mg/L	1.0	104	95	105			
Method: E200.7									Batch: 109388	
Lab ID: MB-109388	6	Method Blank				Run: ICP203-B_170515A			05/15/17 17:43	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: LCS-109388	6	Laboratory Control Sample				Run: ICP203-B_170515A			05/15/17 17:46	
Boron		0.517	mg/L	0.10	103	85	115			
Calcium		28.5	mg/L	1.0	114	85	115			
Lithium		0.566	mg/L	0.10	113	85	115			
Magnesium		28.5	mg/L	1.0	114	85	115			
Potassium		28.2	mg/L	1.0	113	85	115			
Sodium		27.8	mg/L	1.0	111	85	115			
Lab ID: B17050928-001BMS3	6	Sample Matrix Spike				Run: ICP203-B_170515A			05/15/17 18:00	
Boron		1.85	mg/L	0.050	124	70	130			
Calcium		219	mg/L	1.0		70	130			A
Lithium		0.816	mg/L	0.10	123	70	130			
Magnesium		90.0	mg/L	1.0	131	70	130			S
Potassium		63.8	mg/L	1.0	120	70	130			
Sodium		467	mg/L	2.1		70	130			A
Lab ID: B17050928-001BMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_170515A			05/15/17 18:04	
Boron		1.73	mg/L	0.050	100	70	130	6.5	20	
Calcium		204	mg/L	1.0		70	130	6.7	20	A
Lithium		0.755	mg/L	0.10	111	70	130	7.7	20	
Magnesium		83.6	mg/L	1.0	105	70	130	7.4	20	
Potassium		60.4	mg/L	1.0	106	70	130	5.6	20	
Sodium		442	mg/L	2.1		70	130	5.4	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170516B	
Lab ID: **ICV**	6	Continuing Calibration Verification Standard							05/16/17 11:01	
Boron		2.49	mg/L	0.10	100	95	105			
Calcium		24.9	mg/L	1.0	100	95	105			
Lithium		1.24	mg/L	0.10	100	95	105			
Magnesium		24.8	mg/L	1.0	99	95	105			
Potassium		24.8	mg/L	1.0	99	95	105			
Sodium		24.9	mg/L	1.0	100	95	105			
Method: **E200.7**									Batch: 109388	
Lab ID: **MB-109388**	6	Method Blank				Run: ICP203-B_170516B			05/16/17 19:16	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		0.04	mg/L	0.03						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170512A	
Lab ID: QCS	11	Initial Calibration Verification Standard							05/13/17 06:00	
Antimony		0.0492	mg/L	0.050	98	90	110			
Arsenic		0.0551	mg/L	0.0050	110	90	110			
Barium		0.0497	mg/L	0.10	99	90	110			
Beryllium		0.0255	mg/L	0.0010	102	90	110			
Cadmium		0.0258	mg/L	0.0010	103	90	110			
Chromium		0.0516	mg/L	0.010	103	90	110			
Cobalt		0.0522	mg/L	0.010	104	90	110			
Lead		0.0496	mg/L	0.010	99	90	110			
Molybdenum		0.0481	mg/L	0.0050	96	90	110			
Selenium		0.0505	mg/L	0.0050	101	90	110			
Thallium		0.0500	mg/L	0.10	100	90	110			
Method: E200.8										Batch: 109388
Lab ID: MB-109388	11	Method Blank				Run: ICPMS206-B_170512A				05/12/17 19:08
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00002	mg/L	7E-06						
Lab ID: B17042380-002CMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170512A				05/12/17 19:14
Antimony		0.470	mg/L	0.0010	94	70	130			
Arsenic		0.496	mg/L	0.0010	99	70	130			
Barium		0.484	mg/L	0.050	95	70	130			
Beryllium		0.238	mg/L	0.0010	95	70	130			
Cadmium		0.245	mg/L	0.0010	95	70	130			
Chromium		0.451	mg/L	0.0050	90	70	130			
Cobalt		0.464	mg/L	0.0050	93	70	130			
Lead		0.476	mg/L	0.0010	94	70	130			
Molybdenum		0.452	mg/L	0.0010	90	70	130			
Selenium		0.464	mg/L	0.0010	93	70	130			
Thallium		0.495	mg/L	0.00050	99	70	130			
Lab ID: B17042380-002CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170512A				05/12/17 19:18
Antimony		0.478	mg/L	0.0010	96	70	130	1.6	20	
Arsenic		0.496	mg/L	0.0010	99	70	130	0.1	20	
Barium		0.482	mg/L	0.050	95	70	130	0.4	20	
Beryllium		0.232	mg/L	0.0010	93	70	130	2.3	20	
Cadmium		0.244	mg/L	0.0010	94	70	130	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: 109388	
Lab ID: B17042380-002CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170512A			05/12/17 19:18	
Chromium		0.466	mg/L	0.0050	93	70	130	3.4	20	
Cobalt		0.455	mg/L	0.0050	91	70	130	2.1	20	
Lead		0.471	mg/L	0.0010	93	70	130	1.0	20	
Molybdenum		0.463	mg/L	0.0010	93	70	130	2.5	20	
Selenium		0.460	mg/L	0.0010	92	70	130	0.8	20	
Thallium		0.477	mg/L	0.00050	95	70	130	3.7	20	
Lab ID: B17050928-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170512A			05/13/17 08:56	
Antimony		0.503	mg/L	0.0010	101	70	130			
Arsenic		0.552	mg/L	0.0010	110	70	130			
Barium		0.825	mg/L	0.050	165	70	130			S
Beryllium		0.243	mg/L	0.0010	97	70	130			
Cadmium		0.247	mg/L	0.0010	99	70	130			
Chromium		0.488	mg/L	0.0050	98	70	130			
Cobalt		0.496	mg/L	0.0050	99	70	130			
Lead		0.514	mg/L	0.0010	103	70	130			
Molybdenum		0.547	mg/L	0.0010	109	70	130			
Selenium		0.500	mg/L	0.0010	100	70	130			
Thallium		0.478	mg/L	0.00050	96	70	130			
Lab ID: B17050928-001BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170512A			05/13/17 09:09	
Antimony		0.509	mg/L	0.0010	102	70	130	1.2	20	
Arsenic		0.539	mg/L	0.0010	108	70	130	2.3	20	
Barium		0.840	mg/L	0.050	168	70	130	1.8	20	S
Beryllium		0.247	mg/L	0.0010	99	70	130	1.8	20	
Cadmium		0.252	mg/L	0.0010	101	70	130	2.0	20	
Chromium		0.476	mg/L	0.0050	95	70	130	2.6	20	
Cobalt		0.502	mg/L	0.0050	100	70	130	1.2	20	
Lead		0.518	mg/L	0.0010	104	70	130	0.9	20	
Molybdenum		0.551	mg/L	0.0010	110	70	130	0.8	20	
Selenium		0.503	mg/L	0.0010	101	70	130	0.7	20	
Thallium		0.484	mg/L	0.00050	97	70	130	1.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/24/17
Project: TMPA 6706150060
Work Order: B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 109388
Lab ID: MB-109388	11	Method Blank				Run: ICPMS206-B_170515A				05/15/17 14:56
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00002	mg/L	7E-06						
Lab ID: LCS-109388	11	Laboratory Control Sample				Run: ICPMS206-B_170515A				05/15/17 15:03
Antimony		0.510	mg/L	0.0010	102	85	115			
Arsenic		0.532	mg/L	0.0010	106	85	115			
Barium		0.526	mg/L	0.050	105	85	115			
Beryllium		0.265	mg/L	0.0010	106	85	115			
Cadmium		0.267	mg/L	0.0010	107	85	115			
Chromium		0.531	mg/L	0.0050	106	85	115			
Cobalt		0.509	mg/L	0.0050	102	85	115			
Lead		0.519	mg/L	0.0010	104	85	115			
Molybdenum		0.501	mg/L	0.0010	100	85	115			
Selenium		0.507	mg/L	0.0010	101	85	115			
Thallium		0.519	mg/L	0.00050	104	85	115			
Lab ID: B17042380-002CMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170515A				05/15/17 15:06
Antimony		0.510	mg/L	0.0010	102	70	130			
Arsenic		0.522	mg/L	0.0010	104	70	130			
Barium		0.529	mg/L	0.050	104	70	130			
Beryllium		0.255	mg/L	0.0010	102	70	130			
Cadmium		0.267	mg/L	0.0010	103	70	130			
Chromium		0.508	mg/L	0.0050	101	70	130			
Cobalt		0.502	mg/L	0.0050	100	70	130			
Lead		0.514	mg/L	0.0010	102	70	130			
Molybdenum		0.497	mg/L	0.0010	99	70	130			
Selenium		0.506	mg/L	0.0010	101	70	130			
Thallium		0.507	mg/L	0.00050	101	70	130			
Lab ID: B17042380-002CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170515A				05/15/17 15:09
Antimony		0.515	mg/L	0.0010	103	70	130	0.8	20	
Arsenic		0.500	mg/L	0.0010	100	70	130	4.3	20	
Barium		0.525	mg/L	0.050	103	70	130	0.9	20	
Beryllium		0.251	mg/L	0.0010	100	70	130	1.5	20	
Cadmium		0.264	mg/L	0.0010	102	70	130	1.1	20	
Chromium		0.498	mg/L	0.0050	99	70	130	1.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: 109388	
Lab ID: B17042380-002CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170515A			05/15/17 15:09	
Cobalt		0.496	mg/L	0.0050	99	70	130	1.1	20	
Lead		0.510	mg/L	0.0010	101	70	130	0.8	20	
Molybdenum		0.504	mg/L	0.0010	101	70	130	1.6	20	
Selenium		0.501	mg/L	0.0010	100	70	130	1.0	20	
Thallium		0.504	mg/L	0.00050	101	70	130	0.5	20	
Lab ID: B17050928-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170515A			05/15/17 15:40	
Antimony		0.511	mg/L	0.0010	102	70	130			
Arsenic		0.513	mg/L	0.0010	103	70	130			
Barium		0.842	mg/L	0.050	168	70	130			S
Beryllium		0.251	mg/L	0.0010	100	70	130			
Cadmium		0.240	mg/L	0.0010	96	70	130			
Chromium		0.489	mg/L	0.0050	98	70	130			
Cobalt		0.496	mg/L	0.0050	99	70	130			
Lead		0.519	mg/L	0.0010	104	70	130			
Molybdenum		0.553	mg/L	0.0010	111	70	130			
Selenium		0.494	mg/L	0.0010	99	70	130			
Thallium		0.479	mg/L	0.00050	96	70	130			
Lab ID: B17050928-001BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170515A			05/15/17 15:43	
Antimony		0.517	mg/L	0.0010	103	70	130	1.1	20	
Arsenic		0.504	mg/L	0.0010	101	70	130	1.9	20	
Barium		0.846	mg/L	0.050	169	70	130	0.5	20	S
Beryllium		0.253	mg/L	0.0010	101	70	130	0.9	20	
Cadmium		0.244	mg/L	0.0010	98	70	130	1.9	20	
Chromium		0.497	mg/L	0.0050	99	70	130	1.7	20	
Cobalt		0.508	mg/L	0.0050	102	70	130	2.3	20	
Lead		0.521	mg/L	0.0010	104	70	130	0.5	20	
Molybdenum		0.566	mg/L	0.0010	113	70	130	2.4	20	
Selenium		0.492	mg/L	0.0010	98	70	130	0.4	20	
Thallium		0.485	mg/L	0.00050	97	70	130	1.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050949

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170512A	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/12/17 11:59	
Mercury		0.00207	mg/L	0.00010	104	90	110			
Method: **E245.1**									Batch: 109452	
Lab ID: **MB-109452**		Method Blank				Run: HGCV202-B_170512A			05/12/17 12:24	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-109452**		Laboratory Control Sample				Run: HGCV202-B_170512A			05/12/17 12:25	
Mercury		0.00204	mg/L	0.00010	102	85	115			
Lab ID: **B17050929-001BMS**		Sample Matrix Spike				Run: HGCV202-B_170512A			05/12/17 12:29	
Mercury		0.00207	mg/L	0.00010	103	70	130			
Lab ID: **B17050929-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170512A			05/12/17 12:31	
Mercury		0.00210	mg/L	0.00010	105	70	130	1.5	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/24/17

Project: TMPA 6706150060 **Work Order:** B17050949

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 1_170511A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							05/11/17 15:47	
Chloride			2.04	mg/L	1.0	91	90	110			
Sulfate			8.38	mg/L	1.0	93	90	110			
Method:	**E300.0**									Batch: R279760	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 1_170511A			05/11/17 16:06	
Chloride			ND	mg/L	0.009						
Sulfate			ND	mg/L	0.01						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_170511A			05/11/17 16:25	
Chloride			9.99	mg/L	1.0	100	90	110			
Sulfate			29.9	mg/L	1.0	100	90	110			
Lab ID:	**B17050949-001AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170511A			05/12/17 03:48	
Chloride			2140	mg/L	6.1	101	90	110			
Sulfate			4280	mg/L	18	104	90	110			
Lab ID:	**B17050949-001AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170511A			05/12/17 04:07	
Chloride			2120	mg/L	6.1	99	90	110	1.0	20	
Sulfate			4250	mg/L	18	102	90	110	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 05/31/17
Work Order: B17050949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8500
Lab ID: LCS-RA226-8500	Laboratory Control Sample				Run: G5000W_170516B				05/30/17 11:45
Radium 226	8.3	pCi/L		82	80	120			
Lab ID: MB-RA226-8500	Method Blank				Run: G5000W_170516B				05/30/17 11:45
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C17050286-001CMS	Sample Matrix Spike				Run: G5000W_170516B				05/30/17 11:45
Radium 226	19	pCi/L		82	70	130			
Lab ID: C17050286-001CMSD	Sample Matrix Spike Duplicate				Run: G5000W_170516B				05/30/17 11:45
Radium 226	17	pCi/L		76	70	130	6.7	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 05/31/17
Work Order: B17050949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5500
Lab ID: LCS-228-RA226-8500	Laboratory Control Sample				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	9.8	pCi/L		91	80	120			
Lab ID: MB-RA226-8500	Method Blank				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	0.5	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17050286-013CMS	Sample Matrix Spike				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	20	pCi/L		82	70	130			
Lab ID: C17050286-013CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170516B				05/24/17 10:30
Radium 228	20	pCi/L		80	70	130	2.0	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17050949

Login completed by: Gina McCartney
Date Received: 5/10/2017
Reviewed by: BL2000\tedwards
Received by: gmm
Reviewed Date: 5/11/2017
Carrier name: Return-UPS NDA N/C

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	9.8°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

A Chain of Custody was not received with this cooler. This cooler contains the missing samples from work order B17050604 due to the cooler being lost in transit. Continue with analysis per email from Shari Endy, Energy Laboratory Project Manager. The Chain of Custody was originated in laboratory using information from the Chain of Custody associated with work order B17050604.

One of the two containers for sample SSP MW-4 for Radiochemistry was received with the lid off and completely empty. There is sufficient volume to continue with analysis using remaining container.

Chain of Custody and Analytical Request Record

Page ____ of ____

PLEASE PRINT (Provide as much information as possible.)

Company Name: AMEC Foster Wheeler

Report Mail Address:

Project Name, PWS, Permit, Etc.: TMPA 6706150060

Sample Origin State:

EPA/State Compliance: Yes ☐ No ☐

Contact Name: Greg Serfert Phone/Fax: 512-795-0360 Email:

Sampler: (Please Print) Brian Gieselman 512-241-2321

Invoice Address:

Invoice Contact & Phone:

Purchase Order:

Quote/Bottle Order: 3997

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Schedule1	Schedule2	RadChem	COC ORIGINATED IN LABORATORY	SEE ATTACHED
1 SSP-MW-4	5-4-17	09:55		X	X			
2 SSP-MW-3	5-4-17	11:25		X	X			
3 EQBK-SCM-050317	5-4-17	12:55		X	X			
4 SSP-MW-2	5-3-17	15:45				X		
5								
6								
7								
8								
9								
10								

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: COC ORIGINATED IN LABORATORY

Shipped by:

Cooler ID(s):

Receipt Temp ____ °C

On Ice: Y N

Custody Seal On Bottle Y N On Cooler Y N

Intact Y N

Signature Match Y N

LABORATORY USE ONLY

B170509490 -001
-002
-003
-004

Custody Record MUST be Signed

Relinquished by (print): Date/Time: Signature:

Relinquished by (print): Date/Time: COC ORIGINATED IN LABORATORY Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Mgarney 5-10-17 09:20 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17051284 Quote ID: B3997 - CCRR

Project Name: TMPA 6706150060

Energy Laboratories Inc Billings MT received the following 2 samples for Texas Municipal Power Agency on 5/12/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17051284-001	SFL MW-7	05/11/17 12:02	05/12/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA 6706150060
Work Order: B17051284

Revised Date: 12/21/17
Report Date: 06/13/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17051284-001
Client Sample ID: SFL MW-7

Revised Date: 12/21/17
Report Date: 06/13/17
Collection Date: 05/11/17 12:02
DateReceived: 05/12/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	678	mg/L		1		E200.7	05/17/17 02:54 / rlh
Magnesium	106	mg/L		1		E200.7	05/17/17 02:54 / rlh
Potassium	48	mg/L		1		E200.7	05/17/17 02:54 / rlh
Sodium	1230	mg/L	D	4		E200.7	05/17/17 02:54 / rlh
PHYSICAL PROPERTIES							
pH	6.8	s.u.	H	0.1		A4500-H B	05/12/17 19:59 / pjw
Solids, Total Dissolved TDS @ 180 C	7260	mg/L	D	100		A2540 C	05/15/17 08:35 / mnh
INORGANICS							
Chloride	2870	mg/L	D	6		E300.0	05/17/17 22:56 / cjm
Sulfate	811	mg/L	D	20		E300.0	05/17/17 22:56 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	05/16/17 12:33 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	05/17/17 00:38 / jpv
Arsenic	ND	mg/L		0.01		E200.8	05/17/17 00:38 / jpv
Barium	0.04	mg/L		0.01		E200.7	05/17/17 02:54 / rlh
Beryllium	ND	mg/L		0.001		E200.8	05/17/17 00:38 / jpv
Boron	0.75	mg/L		0.05		E200.7	05/17/17 02:54 / rlh
Cadmium	ND	mg/L		0.005		E200.8	05/17/17 00:38 / jpv
Chromium	ND	mg/L		0.01		E200.8	05/17/17 00:38 / jpv
Cobalt	ND	mg/L		0.02		E200.8	05/17/17 23:08 / jpv
Lead	ND	mg/L		0.01		E200.8	05/17/17 00:38 / jpv
Lithium	0.46	mg/L	D	0.04		E200.7	05/17/17 02:54 / rlh
Mercury	ND	mg/L		0.001		E245.1	05/15/17 15:17 / jh
Molybdenum	ND	mg/L		0.05		E200.8	05/17/17 00:38 / jpv
Selenium	ND	mg/L		0.01		E200.8	05/17/17 00:38 / jpv
Thallium	ND	mg/L		0.002		E200.8	05/17/17 00:38 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.61	pCi/L				E903.0	06/12/17 09:33 / eli-ca
Radium 226 precision (±)	0.21	pCi/L				E903.0	06/12/17 09:33 / eli-ca
Radium 226 MDC	0.23	pCi/L				E903.0	06/12/17 09:33 / eli-ca
Radium 228	1.3	pCi/L				RA-05	06/07/17 10:44 / eli-ca
Radium 228 precision (±)	0.59	pCi/L				RA-05	06/07/17 10:44 / eli-ca
Radium 228 MDC	1.1	pCi/L				RA-05	06/07/17 10:44 / eli-ca
Radium 226 + Radium 228	1.9	pCi/L				A7500-RA	06/13/17 13:14 / eli-ca
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	06/13/17 13:14 / eli-ca
Radium 226 + Radium 228 MDC	1.1	pCi/L				A7500-RA	06/13/17 13:14 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 06/13/17
Work Order: B17051284

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8514
Lab ID: LCS-RA226-8514	Laboratory Control Sample				Run: G5000W_170601A				06/12/17 09:33
Radium 226	9.4	pCi/L		92	80	120			
Lab ID: MB-RA226-8514	Method Blank				Run: G5000W_170601A				06/12/17 09:33
Radium 226	0.2	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C17050807-003DMS	Sample Matrix Spike				Run: G5000W_170601A				06/12/17 09:34
Radium 226	25	pCi/L		111	70	130			
Lab ID: C17050807-003DMSD	Sample Matrix Spike Duplicate				Run: G5000W_170601A				06/12/17 09:34
Radium 226	20	pCi/L		91	70	130	20	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 06/13/17
Work Order: B17051284

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5510
Lab ID: LCS-228-RA226-8514	Laboratory Control Sample				Run: TENNELEC-3_170601A				06/07/17 10:44
Radium 228	9.0	pCi/L		83	80	120			
Lab ID: MB-RA226-8514	Method Blank				Run: TENNELEC-3_170601A				06/07/17 10:44
Radium 228	0.5	pCi/L							U
Radium 228 precision (±)	0.6	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17050807-009DMS	Sample Matrix Spike				Run: TENNELEC-3_170601A				06/07/17 10:44
Radium 228	21	pCi/L		82	70	130			
Lab ID: C17050807-009DMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170601A				06/07/17 10:44
Radium 228	21	pCi/L		80	70	130	2.4	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/13/17

Project: TMPA 6706150060

Work Order: B17051284

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170516B	
Lab ID: ICV	7	Continuing Calibration Verification Standard							05/16/17 11:01	
Barium		2.43	mg/L	0.10	97	95	105			
Boron		2.49	mg/L	0.10	100	95	105			
Calcium		24.9	mg/L	1.0	100	95	105			
Lithium		1.24	mg/L	0.10	100	95	105			
Magnesium		24.8	mg/L	1.0	99	95	105			
Potassium		24.8	mg/L	1.0	99	95	105			
Sodium		24.9	mg/L	1.0	100	95	105			
Method: E200.7									Batch: 109493	
Lab ID: MB-109493	7	Method Blank				Run: ICP203-B_170516B			05/17/17 01:30	
Barium		ND	mg/L	0.0005						
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.07						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.4						
Lab ID: LCS-109493	7	Laboratory Control Sample				Run: ICP203-B_170516B			05/17/17 01:34	
Barium		0.460	mg/L	0.10	92	85	115			
Boron		0.455	mg/L	0.10	91	85	115			
Calcium		24.3	mg/L	1.0	97	85	115			
Lithium		0.484	mg/L	0.10	97	85	115			
Magnesium		24.5	mg/L	1.0	98	85	115			
Potassium		24.3	mg/L	1.0	97	85	115			
Sodium		23.5	mg/L	1.0	94	85	115			
Lab ID: B17051268-001BMS3	7	Sample Matrix Spike				Run: ICP203-B_170516B			05/17/17 02:26	
Barium		0.598	mg/L	0.050	105	70	130			
Boron		0.880	mg/L	0.050	107	70	130			
Calcium		68.5	mg/L	1.0	107	70	130			
Lithium		0.606	mg/L	0.10	110	70	130			
Magnesium		49.0	mg/L	1.0	109	70	130			
Potassium		85.0	mg/L	1.0	101	70	130			
Sodium		252	mg/L	1.0		70	130			A
Lab ID: B17051268-001BMSD	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170516B			05/17/17 02:30	
Barium		0.576	mg/L	0.050	101	70	130	3.8	20	
Boron		0.852	mg/L	0.050	102	70	130	3.2	20	
Calcium		67.0	mg/L	1.0	101	70	130	2.3	20	
Lithium		0.595	mg/L	0.10	108	70	130	1.8	20	
Magnesium		47.8	mg/L	1.0	104	70	130	2.6	20	
Potassium		84.4	mg/L	1.0	99	70	130	0.7	20	
Sodium		247	mg/L	1.0		70	130	2.0	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/13/17

Project: TMPA 6706150060

Work Order: B17051284

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170515A	
Lab ID: QCS	9	Initial Calibration Verification Standard							05/16/17 19:32	
Antimony		0.0472	mg/L	0.050	94	90	110			
Arsenic		0.0518	mg/L	0.0050	104	90	110			
Beryllium		0.0245	mg/L	0.0010	98	90	110			
Cadmium		0.0231	mg/L	0.0010	92	90	110			
Chromium		0.0482	mg/L	0.010	96	90	110			
Lead		0.0484	mg/L	0.010	97	90	110			
Molybdenum		0.0461	mg/L	0.0050	92	90	110			
Selenium		0.0525	mg/L	0.0050	105	90	110			
Thallium		0.0498	mg/L	0.10	100	90	110			
Method: E200.8									Batch: 109493	
Lab ID: MB-109493	10	Method Blank				Run: ICPMS206-B_170515A			05/16/17 22:52	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		0.0001	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00003	mg/L	7E-06						
Lab ID: LCS-109493	10	Laboratory Control Sample				Run: ICPMS206-B_170515A			05/16/17 22:59	
Antimony		0.480	mg/L	0.0010	96	85	115			
Arsenic		0.455	mg/L	0.0010	91	85	115			
Beryllium		0.240	mg/L	0.0010	96	85	115			
Cadmium		0.237	mg/L	0.0010	95	85	115			
Chromium		0.460	mg/L	0.0050	92	85	115			
Cobalt		0.472	mg/L	0.0050	94	85	115			
Lead		0.467	mg/L	0.0010	93	85	115			
Molybdenum		0.452	mg/L	0.0010	90	85	115			
Selenium		0.482	mg/L	0.0010	96	85	115			
Thallium		0.500	mg/L	0.00050	100	85	115			
Lab ID: B17051268-001BMS3	10	Sample Matrix Spike				Run: ICPMS206-B_170515A			05/17/17 00:11	
Antimony		0.529	mg/L	0.0010	106	70	130			
Arsenic		0.508	mg/L	0.0010	101	70	130			
Beryllium		0.261	mg/L	0.0010	105	70	130			
Cadmium		0.240	mg/L	0.0010	96	70	130			
Chromium		0.460	mg/L	0.0050	92	70	130			
Cobalt		0.519	mg/L	0.0050	104	70	130			
Lead		0.500	mg/L	0.0010	100	70	130			
Molybdenum		0.543	mg/L	0.0010	102	70	130			
Selenium		0.502	mg/L	0.0010	97	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 06/13/17

Project: TMPA 6706150060

Work Order: B17051284

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 109493
Lab ID: **B17051268-001BMS3**	10	Sample Matrix Spike				Run: ICPMS206-B_170515A				05/17/17 00:11
Thallium		0.536	mg/L	0.00050	107	70	130			
Lab ID: **B17051268-001BMSD**	10	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170515A				05/17/17 00:14
Antimony		0.491	mg/L	0.0010	98	70	130	7.3	20	
Arsenic		0.500	mg/L	0.0010	99	70	130	1.7	20	
Beryllium		0.240	mg/L	0.0010	96	70	130	8.6	20	
Cadmium		0.224	mg/L	0.0010	90	70	130	7.0	20	
Chromium		0.463	mg/L	0.0050	92	70	130	0.7	20	
Cobalt		0.477	mg/L	0.0050	95	70	130	8.4	20	
Lead		0.460	mg/L	0.0010	92	70	130	8.3	20	
Molybdenum		0.508	mg/L	0.0010	95	70	130	6.6	20	
Selenium		0.487	mg/L	0.0010	94	70	130	3.0	20	
Thallium		0.469	mg/L	0.00050	94	70	130	13	20	
Method: **E200.8**										Analytical Run: ICPMS206-B_170517A
Lab ID: **QCS**		Initial Calibration Verification Standard								05/17/17 22:51
Cobalt		0.0502	mg/L	0.010	100	90	110			
Method: **E200.8**										Batch: 109493
Lab ID: **MB-109493**		Method Blank				Run: ICPMS206-B_170517A				05/17/17 23:05
Cobalt		ND	mg/L	0.00002						

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency
Report Date: 06/13/17

Project: TMPA 6706150060
Work Order: B17051284

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170515A	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/15/17 14:48	
Mercury		0.00200	mg/L	0.00010	100	90	110			
Method: **E245.1**									Batch: 109521	
Lab ID: **MB-109521**		Method Blank				Run: HGCV202-B_170515A			05/15/17 14:54	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-109521**		Laboratory Control Sample				Run: HGCV202-B_170515A			05/15/17 14:56	
Mercury		0.00202	mg/L	0.00010	101	85	115			
Lab ID: **B17051284-002BMS**		Sample Matrix Spike				Run: HGCV202-B_170515A			05/15/17 15:21	
Mercury		0.00186	mg/L	0.00010	93	70	130			
Lab ID: **B17051284-002BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170515A			05/15/17 15:22	
Mercury		0.00186	mg/L	0.00010	93	70	130	0.2	30	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 05/30/17
Project: TMPA 6706150060
Work Order: B17051284

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: 109527
Lab ID: **MB-109527**		Method Blank				Run: BAL #SD-15_170515C				05/15/17 08:27
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: **LCS-109527**		Laboratory Control Sample				Run: BAL #SD-15_170515C				05/15/17 08:27
Solids, Total Dissolved TDS @ 180 C		997	mg/L	10	99	90	110			
Lab ID: **B17051243-001A DUP**		Sample Duplicate				Run: BAL #SD-15_170515C				05/15/17 08:28
Solids, Total Dissolved TDS @ 180 C		12600	mg/L	99				0.5	5	
Lab ID: **B17051243-011A DUP**		Sample Duplicate				Run: BAL #SD-15_170515C				05/15/17 08:32
Solids, Total Dissolved TDS @ 180 C		7630	mg/L	99				0.4	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/30/17

Project: TMPA 6706150060 **Work Order:** B17051284

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170516A	
Lab ID: **ICV**		Initial Calibration Verification Standard							05/16/17 09:56	
Fluoride		1.00	mg/L	0.10	100	90	110			
Method: **A4500-F C**									Batch: R279985	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170516A			05/16/17 09:51	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170516A			05/16/17 09:53	
Fluoride		1.02	mg/L	0.10	102	90	110			
Lab ID: **B17051268-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170516A			05/16/17 13:25	
Fluoride		12.4	mg/L	0.50	96	80	120			
Lab ID: **B17051268-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170516A			05/16/17 13:27	
Fluoride		12.4	mg/L	0.50	97	80	120	0.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/30/17

Project: TMPA 6706150060 **Work Order:** B17051284

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170512A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								05/12/17 08:31	
pH		7.97	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R279755	
Lab ID: **B17051279-003ADUP**	Sample Duplicate					Run: PHSC _101-B_170512A			05/12/17 19:46	
pH		5.55	s.u.	0.10				0.9	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 05/30/17

Project: TMPA 6706150060 **Work Order:** B17051284

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 2_170517A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							05/17/17 11:53	
Chloride			2.19	mg/L	1.0	97	90	110			
Sulfate			8.74	mg/L	1.0	97	90	110			
Method:	**E300.0**									Batch: R280093	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 2_170517A			05/17/17 12:12	
Chloride			ND	mg/L	0.002						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_170517A			05/17/17 12:32	
Chloride			10.5	mg/L	1.0	105	90	110			
Sulfate			31.3	mg/L	1.0	104	90	110			
Lab ID:	**B17051278-003AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170517A			05/17/17 22:17	
Chloride			21.4	mg/L	1.0	106	90	110			
Sulfate			95.8	mg/L	1.0	105	90	110			
Lab ID:	**B17051278-003AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170517A			05/17/17 22:36	
Chloride			21.7	mg/L	1.0	107	90	110	1.2	20	
Sulfate			96.2	mg/L	1.0	106	90	110	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency

B17051284

Login completed by: Tabitha Edwards
Date Received: 5/12/2017

Reviewed by: BL2000\cindy
Received by: mme

Reviewed Date: 5/15/2017
Carrier name: Return-FedEx NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

One of the two containers for sample SFL MW-7 for Radiochemistry was received with the lid off and completely empty. There is sufficient volume to continue with analysis using remaining container.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SFL MW-7	5/11/17	1202	4	W	X	X			B17051284-001
2	AP MW-6	"	1336	"	"	X	X			002
3										
4										
5										
6										
7										
8										
9										
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	5/11/17 @ 15:50				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					5/12/17	1015

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17060205 Quote ID: B3997 - CCRR

Project Name: TMPA 6706150060

Energy Laboratories Inc Billings MT received the following 10 samples for Texas Municipal Power Agency on 6/2/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
					Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B17060205-002	MNW-18	05/30/17 16:27	06/02/17	Ground Water	Same As Above
B17060205-004	EQBK-BJG-053017	05/30/17 18:55	06/02/17	Ground Water	Same As Above
B17060205-006	SFLMW-7	05/31/17 11:25	06/02/17	Ground Water	Same As Above
B17060205-007	MNW-15	05/31/17 12:51	06/02/17	Ground Water	Same As Above
B17060205-009	EQBK-BJG-053117	05/31/17 15:15	06/02/17	Ground Water	Same As Above
B17060205-010	DUP-1	05/31/17 0:00	06/02/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA 6706150060
Work Order: B17060205

Revised Date: 12/21/17
Report Date: 07/06/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17060205-002
Client Sample ID: MNW-18

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 05/30/17 16:27
DateReceived: 06/02/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	330	mg/L		1		E200.7	06/06/17 21:49 / rlh
Magnesium	53	mg/L		1		E200.7	06/06/17 21:49 / rlh
Potassium	33	mg/L		1		E200.7	06/06/17 21:49 / rlh
Sodium	712	mg/L	D	2		E200.7	06/06/17 21:49 / rlh
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	06/02/17 15:59 / pjw
Solids, Total Dissolved TDS @ 180 C	3460	mg/L	D	40		A2540 C	06/03/17 08:38 / rik
INORGANICS							
Chloride	590	mg/L	D	3		E300.0	06/05/17 23:50 / cjm
Sulfate	1790	mg/L	D	9		E300.0	06/05/17 23:50 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	06/06/17 13:36 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/07/17 19:57 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/07/17 19:57 / jpv
Barium	0.05	mg/L		0.01		E200.7	06/06/17 21:49 / rlh
Beryllium	ND	mg/L		0.001		E200.7	06/06/17 21:49 / rlh
Boron	0.44	mg/L		0.05		E200.7	06/06/17 21:49 / rlh
Cadmium	ND	mg/L		0.005		E200.7	06/06/17 21:49 / rlh
Chromium	ND	mg/L		0.01		E200.8	06/07/17 19:57 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/07/17 19:57 / jpv
Lead	ND	mg/L		0.01		E200.8	06/07/17 19:57 / jpv
Lithium	0.41	mg/L	D	0.02		E200.7	06/06/17 21:49 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/05/17 14:46 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/06/17 21:49 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/07/17 19:57 / jpv
Thallium	0.002	mg/L		0.002		E200.8	06/07/17 19:57 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.7	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 precision (±)	0.42	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 228	1.6	pCi/L	U			RA-05	06/28/17 14:35 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 226 + Radium 228	3.3	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 MDC	2.0	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17060205-004
Client Sample ID: EQBK-BJG-053017

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 05/30/17 18:55
DateReceived: 06/02/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	06/06/17 21:56 / rlh
Magnesium	ND	mg/L		1		E200.7	06/06/17 21:56 / rlh
Potassium	ND	mg/L		1		E200.7	06/06/17 21:56 / rlh
Sodium	ND	mg/L		1		E200.7	06/06/17 21:56 / rlh
PHYSICAL PROPERTIES							
pH	6.4	s.u.	H	0.1		A4500-H B	06/02/17 16:07 / pjw
Solids, Total Dissolved TDS @ 180 C	10	mg/L		10		A2540 C	06/03/17 08:38 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	06/06/17 00:29 / cjm
Sulfate	ND	mg/L		1		E300.0	06/06/17 00:29 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	06/06/17 13:49 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/07/17 20:10 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/07/17 20:10 / jpv
Barium	ND	mg/L		0.01		E200.7	06/06/17 21:56 / rlh
Beryllium	ND	mg/L		0.001		E200.7	06/06/17 21:56 / rlh
Boron	ND	mg/L		0.05		E200.7	06/06/17 21:56 / rlh
Cadmium	ND	mg/L		0.005		E200.7	06/06/17 21:56 / rlh
Chromium	ND	mg/L		0.01		E200.7	06/06/17 21:56 / rlh
Cobalt	ND	mg/L		0.02		E200.7	06/06/17 21:56 / rlh
Lead	ND	mg/L		0.01		E200.8	06/07/17 20:10 / jpv
Lithium	ND	mg/L		0.01		E200.7	06/06/17 21:56 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/05/17 14:53 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/06/17 21:56 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/07/17 20:10 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/07/17 20:10 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.13	pCi/L	U			E903.0	07/03/17 11:10 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 228	-0.6	pCi/L	U			RA-05	06/28/17 14:35 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 226 + Radium 228	-0.4	pCi/L	U			A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 MDC	2.2	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17060205-006
Client Sample ID: SFLMW-7

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 05/31/17 11:25
DateReceived: 06/02/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	654	mg/L		1		E200.7	06/06/17 22:03 / rlh
Magnesium	103	mg/L		1		E200.7	06/06/17 22:03 / rlh
Potassium	48	mg/L		1		E200.7	06/06/17 22:03 / rlh
Sodium	1230	mg/L	D	4		E200.7	06/06/17 22:03 / rlh
PHYSICAL PROPERTIES							
pH	6.8	s.u.	H	0.1		A4500-H B	06/02/17 16:12 / pjw
Solids, Total Dissolved TDS @ 180 C	6810	mg/L	D	90		A2540 C	06/03/17 08:38 / rik
INORGANICS							
Chloride	2740	mg/L	D	6		E300.0	06/06/17 02:26 / cjm
Sulfate	778	mg/L	D	20		E300.0	06/06/17 02:26 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	06/06/17 13:54 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/07/17 20:15 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/07/17 20:15 / jpv
Barium	0.04	mg/L		0.01		E200.7	06/06/17 22:03 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/07/17 20:15 / jpv
Boron	0.78	mg/L		0.05		E200.7	06/06/17 22:03 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/07/17 20:15 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/07/17 20:15 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/07/17 20:15 / jpv
Lead	ND	mg/L		0.01		E200.8	06/07/17 20:15 / jpv
Lithium	0.45	mg/L	D	0.04		E200.7	06/06/17 22:03 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/05/17 14:57 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/07/17 20:15 / jpv
Selenium	0.02	mg/L		0.01		E200.8	06/07/17 20:15 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/07/17 20:15 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.65	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 228	3.7	pCi/L				RA-05	06/28/17 13:00 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	06/28/17 13:00 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	06/28/17 13:00 / eli-ca
Radium 226 + Radium 228	4.4	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17060205-007
Client Sample ID: MNW-15

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 05/31/17 12:51
DateReceived: 06/02/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	269	mg/L		1		E200.7	06/06/17 22:07 / rlh
Magnesium	52	mg/L		1		E200.7	06/06/17 22:07 / rlh
Potassium	25	mg/L		1		E200.7	06/06/17 22:07 / rlh
Sodium	421	mg/L	D	2		E200.7	06/06/17 22:07 / rlh
PHYSICAL PROPERTIES							
pH	3.7	s.u.	H	0.1		A4500-H B	06/02/17 16:15 / pjw
Solids, Total Dissolved TDS @ 180 C	2720	mg/L	D	40		A2540 C	06/03/17 08:38 / rik
INORGANICS							
Chloride	704	mg/L	D	3		E300.0	06/06/17 02:46 / cjm
Sulfate	1230	mg/L	D	9		E300.0	06/06/17 02:46 / cjm
Fluoride	0.5	mg/L		0.1		A4500-F C	06/06/17 14:00 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/07/17 20:18 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/07/17 20:18 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/06/17 22:07 / rlh
Beryllium	0.071	mg/L		0.001		E200.7	06/06/17 22:07 / rlh
Boron	8.75	mg/L		0.05		E200.7	06/06/17 22:07 / rlh
Cadmium	0.106	mg/L		0.005		E200.7	06/06/17 22:07 / rlh
Chromium	ND	mg/L		0.01		E200.8	06/07/17 20:18 / jpv
Cobalt	0.28	mg/L		0.02		E200.8	06/07/17 20:18 / jpv
Lead	ND	mg/L		0.01		E200.8	06/07/17 20:18 / jpv
Lithium	0.07	mg/L	D	0.02		E200.7	06/06/17 22:07 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/05/17 14:59 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/06/17 22:07 / rlh
Selenium	0.03	mg/L		0.01		E200.8	06/07/17 20:18 / jpv
Thallium	0.002	mg/L		0.002		E200.8	06/07/17 20:18 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.35	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 228	-0.04	pCi/L	U			RA-05	06/28/17 14:35 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 226 + Radium 228	0.3	pCi/L	U			A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 MDC	2.0	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17060205-009
Client Sample ID: EQBK-BJG-053117

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 05/31/17 15:15
DateReceived: 06/02/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	06/06/17 22:14 / rlh
Magnesium	ND	mg/L		1		E200.7	06/06/17 22:14 / rlh
Potassium	ND	mg/L		1		E200.7	06/06/17 22:14 / rlh
Sodium	ND	mg/L		1		E200.7	06/06/17 22:14 / rlh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	06/02/17 16:20 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/03/17 08:38 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	06/06/17 03:25 / cjm
Sulfate	ND	mg/L		1		E300.0	06/06/17 03:25 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	06/06/17 14:11 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/07/17 20:23 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/07/17 20:23 / jpv
Barium	ND	mg/L		0.01		E200.7	06/06/17 22:14 / rlh
Beryllium	ND	mg/L		0.001		E200.7	06/06/17 22:14 / rlh
Boron	ND	mg/L		0.05		E200.7	06/06/17 22:14 / rlh
Cadmium	ND	mg/L		0.005		E200.7	06/06/17 22:14 / rlh
Chromium	ND	mg/L		0.01		E200.7	06/06/17 22:14 / rlh
Cobalt	ND	mg/L		0.02		E200.7	06/06/17 22:14 / rlh
Lead	ND	mg/L		0.01		E200.8	06/07/17 20:23 / jpv
Lithium	ND	mg/L		0.01		E200.7	06/06/17 22:14 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/05/17 15:02 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/06/17 22:14 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/07/17 20:23 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/07/17 20:23 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	07/03/17 11:10 / eli-ca
Radium 226 precision (±)	0.15	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	07/03/17 11:10 / eli-ca
Radium 228	2.2	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	06/28/17 14:35 / eli-ca
Radium 226 + Radium 228	2.3	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 MDC	2.2	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060
Lab ID: B17060205-010
Client Sample ID: DUP-1

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 05/31/17
DateReceived: 06/02/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	699	mg/L		1		E200.7	06/06/17 22:24 / rlh
Magnesium	110	mg/L		1		E200.7	06/06/17 22:24 / rlh
Potassium	50	mg/L		1		E200.7	06/06/17 22:24 / rlh
Sodium	1310	mg/L	D	4		E200.7	06/06/17 22:24 / rlh
PHYSICAL PROPERTIES							
pH	6.8	s.u.	H	0.1		A4500-H B	06/02/17 16:23 / pjw
Solids, Total Dissolved TDS @ 180 C	7150	mg/L	D	100		A2540 C	06/05/17 14:09 / mnh
INORGANICS							
Chloride	2780	mg/L	D	6		E300.0	06/06/17 03:44 / cjm
Sulfate	794	mg/L	D	20		E300.0	06/06/17 03:44 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	06/06/17 14:15 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/07/17 20:26 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/07/17 20:26 / jpv
Barium	0.04	mg/L		0.01		E200.7	06/06/17 22:24 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/07/17 20:26 / jpv
Boron	0.81	mg/L		0.05		E200.7	06/06/17 22:24 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/07/17 20:26 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/07/17 20:26 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/07/17 20:26 / jpv
Lead	ND	mg/L		0.01		E200.8	06/07/17 20:26 / jpv
Lithium	0.48	mg/L	D	0.04		E200.7	06/06/17 22:24 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/05/17 15:04 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/07/17 20:26 / jpv
Selenium	0.02	mg/L		0.01		E200.8	06/07/17 20:26 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/07/17 20:26 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.55	pCi/L				E903.0	07/03/17 08:57 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	07/03/17 08:57 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	07/03/17 08:57 / eli-ca
Radium 228	2.9	pCi/L				RA-05	06/28/17 16:11 / eli-ca
Radium 228 precision (±)	0.94	pCi/L				RA-05	06/28/17 16:11 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	06/28/17 16:11 / eli-ca
Radium 226 + Radium 228	3.4	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	07/03/17 13:46 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 07/03/17
Work Order: B17060205

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8535
Lab ID: LCS-RA226-8535	Laboratory Control Sample				Run: G5000W_170621D				07/03/17 08:57
Radium 226	8.5	pCi/L		83	80	120			
Lab ID: MB-RA226-8535	Method Blank				Run: G5000W_170621D				07/03/17 08:57
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C17060335-001CMS	Sample Matrix Spike				Run: G5000W_170621D				07/03/17 08:57
Radium 226	22	pCi/L		99	70	130			
Lab ID: C17060335-001CMSD	Sample Matrix Spike Duplicate				Run: G5000W_170621D				07/03/17 08:57
Radium 226	19	pCi/L		85	70	130	15	20	
Method: E903.0									Batch: RA226-8534
Lab ID: LCS-RA226-8534	Laboratory Control Sample				Run: G542M_170621C				07/03/17 09:36
Radium 226	9.5	pCi/L		93	80	120			
Lab ID: MB-RA226-8534	Method Blank				Run: G542M_170621C				07/03/17 09:36
Radium 226	0.2	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17060205-001CMS	Sample Matrix Spike				Run: G542M_170621C				07/03/17 09:36
Radium 226	19	pCi/L		87	70	130			
Lab ID: B17060205-001CMSD	Sample Matrix Spike Duplicate				Run: G542M_170621C				07/03/17 09:36
Radium 226	20	pCi/L		93	70	130	6.0	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA 6706150060

Report Date: 07/03/17
Work Order: B17060205

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5523
Lab ID: LCS-228-RA226-8534	Laboratory Control Sample				Run: TENNELEC-3_170621A				06/28/17 13:00
Radium 228	10	pCi/L		105	80	120			
Lab ID: MB-RA226-8534	Method Blank				Run: TENNELEC-3_170621A				06/28/17 13:00
Radium 228	0.6	pCi/L							U
Radium 228 precision (±)	1	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: B17060205-006CMS	Sample Matrix Spike				Run: TENNELEC-3_170621A				06/28/17 13:00
Radium 228	23	pCi/L		102	70	130			
Lab ID: B17060205-006CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170621A				06/28/17 13:00
Radium 228	34	pCi/L		97	70	130	39	20	R
Method: RA-05									Batch: RA228-5524
Lab ID: LCS-228-RA226-8535	Laboratory Control Sample				Run: TENNELEC-3_170621B				06/28/17 16:11
Radium 228	9.6	pCi/L		102	80	120			
Lab ID: MB-RA226-8535	Method Blank				Run: TENNELEC-3_170621B				06/28/17 16:11
Radium 228	0.1	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17060350-010DMS	Sample Matrix Spike				Run: TENNELEC-3_170621B				06/28/17 16:11
Radium 228	18	pCi/L		85	70	130			
Lab ID: C17060350-010DMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170621B				06/28/17 16:11
Radium 228	18	pCi/L		82	70	130	2.1	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: TMPA 6706150060

Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170606A	
Lab ID: **ICV**	12	Continuing Calibration Verification Standard							06/06/17 09:49	
Barium		2.41	mg/L	0.10	96	95	105			
Beryllium		1.26	mg/L	0.010	101	95	105			
Boron		2.51	mg/L	0.10	100	95	105			
Cadmium		2.46	mg/L	0.010	98	95	105			
Calcium		24.7	mg/L	1.0	99	95	105			
Chromium		2.41	mg/L	0.050	97	95	105			
Cobalt		2.45	mg/L	0.020	98	95	105			
Lithium		1.21	mg/L	0.10	96	95	105			
Magnesium		24.5	mg/L	1.0	98	95	105			
Molybdenum		2.47	mg/L	0.10	99	95	105			
Potassium		24.1	mg/L	1.0	96	95	105			
Sodium		24.0	mg/L	1.0	96	95	105			
Method: **E200.7**									Batch: 110160	
Lab ID: **MB-110160**	12	Method Blank				Run: ICP203-B_170606A			06/06/17 20:22	
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Chromium		0.003	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: **LCS-110160**	12	Laboratory Control Sample				Run: ICP203-B_170606A			06/06/17 20:25	
Barium		0.506	mg/L	0.10	101	85	115			
Beryllium		0.266	mg/L	0.010	106	85	115			
Boron		0.493	mg/L	0.10	99	85	115			
Cadmium		0.255	mg/L	0.010	102	85	115			
Calcium		28.1	mg/L	1.0	113	85	115			
Chromium		0.502	mg/L	0.050	100	85	115			
Cobalt		0.514	mg/L	0.050	103	85	115			
Lithium		0.565	mg/L	0.10	113	85	115			
Magnesium		27.9	mg/L	1.0	112	85	115			
Molybdenum		0.505	mg/L	0.10	101	85	115			
Potassium		28.2	mg/L	1.0	113	85	115			
Sodium		27.6	mg/L	1.0	110	85	115			
Lab ID: **B17060205-001BMS3**	12	Sample Matrix Spike				Run: ICP203-B_170606A			06/06/17 21:42	
Barium		0.566	mg/L	0.050	104	70	130			
Beryllium		0.260	mg/L	0.0014	104	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: TMPA 6706150060

Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 110160	
Lab ID: B17060205-001BMS3	12	Sample Matrix Spike				Run: ICP203-B_170606A			06/06/17 21:42	
Boron		1.21	mg/L	0.050	125	70	130			
Cadmium		0.255	mg/L	0.0099	102	70	130			
Calcium		664	mg/L	1.0		70	130			A
Chromium		0.544	mg/L	0.020	109	70	130			
Cobalt		0.508	mg/L	0.052	102	70	130			
Lithium		1.21	mg/L	0.10	90	70	130			
Magnesium		131	mg/L	1.0		70	130			A
Molybdenum		0.488	mg/L	0.071	98	70	130			
Potassium		77.2	mg/L	1.0	98	70	130			
Sodium		1330	mg/L	4.2		70	130			A
Lab ID: B17060205-001BMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170606A			06/06/17 21:46	
Barium		0.568	mg/L	0.050	104	70	130	0.3	20	
Beryllium		0.252	mg/L	0.0014	101	70	130	3.2	20	
Boron		1.17	mg/L	0.050	118	70	130	3.1	20	
Cadmium		0.250	mg/L	0.0099	100	70	130	2.3	20	
Calcium		658	mg/L	1.0		70	130	1.0	20	A
Chromium		0.525	mg/L	0.020	105	70	130	3.5	20	
Cobalt		0.509	mg/L	0.052	102	70	130	0.3	20	
Lithium		1.25	mg/L	0.10	98	70	130	3.4	20	
Magnesium		130	mg/L	1.0		70	130	1.1	20	A
Molybdenum		0.427	mg/L	0.071	85	70	130	13	20	
Potassium		76.8	mg/L	1.0	97	70	130	0.6	20	
Sodium		1370	mg/L	4.2		70	130	2.6	20	A
Lab ID: B17060234-001CMS3	12	Sample Matrix Spike				Run: ICP203-B_170606A			06/06/17 22:39	
Barium		0.612	mg/L	0.050	111	70	130			
Beryllium		0.271	mg/L	0.0010	108	70	130			
Boron		1.21	mg/L	0.050	109	70	130			
Cadmium		0.267	mg/L	0.0050	107	70	130			
Calcium		29.8	mg/L	1.0	111	70	130			
Chromium		0.543	mg/L	0.010	109	70	130			
Cobalt		0.538	mg/L	0.026	108	70	130			
Lithium		0.701	mg/L	0.10	108	70	130			
Magnesium		27.8	mg/L	1.0	110	70	130			
Molybdenum		0.496	mg/L	0.036	99	70	130			
Potassium		29.8	mg/L	1.0	107	70	130			
Sodium		628	mg/L	2.1		70	130			A
Lab ID: B17060234-001CMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170606A			06/06/17 22:42	
Barium		0.568	mg/L	0.050	102	70	130	7.4	20	
Beryllium		0.256	mg/L	0.0010	103	70	130	5.6	20	
Boron		1.15	mg/L	0.050	97	70	130	5.1	20	
Cadmium		0.257	mg/L	0.0050	103	70	130	3.8	20	
Calcium		28.8	mg/L	1.0	107	70	130	3.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency
Report Date: 07/06/17

Project: TMPA 6706150060
Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**										Batch: 110160
Lab ID: **B17060234-001CMSD**	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170606A				06/06/17 22:42
Chromium		0.526	mg/L	0.010	105	70	130	3.1	20	
Cobalt		0.523	mg/L	0.026	105	70	130	3.0	20	
Lithium		0.649	mg/L	0.10	97	70	130	7.8	20	
Magnesium		26.9	mg/L	1.0	107	70	130	3.3	20	
Molybdenum		0.510	mg/L	0.036	102	70	130	2.7	20	
Potassium		27.6	mg/L	1.0	98	70	130	7.8	20	
Sodium		584	mg/L	2.1		70	130	7.3	20	A
Method: **E200.7**										Analytical Run: ICP203-B_170607A
Lab ID: **ICV**		Continuing Calibration Verification Standard								06/07/17 10:35
Lithium		1.21	mg/L	0.10	97	95	105			
Method: **E200.7**										Batch: 110160
Lab ID: **MB-110160**		Method Blank				Run: ICP203-B_170607A				06/07/17 22:46
Lithium		ND	mg/L	0.004						
Lab ID: **LCS-110160**		Laboratory Control Sample				Run: ICP203-B_170607A				06/07/17 22:49
Lithium		0.501	mg/L	0.10	100	85	115			
Lab ID: **B17060205-001BMS3**		Sample Matrix Spike				Run: ICP203-B_170607A				06/07/17 23:10
Lithium		1.22	mg/L	0.10	103	70	130			
Lab ID: **B17060205-001BMSD**		Sample Matrix Spike Duplicate				Run: ICP203-B_170607A				06/07/17 23:14
Lithium		1.24	mg/L	0.10	107	70	130	1.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: TMPA 6706150060

Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS202-B_170606A	
Lab ID: QCS	10	Initial Calibration Verification Standard							06/07/17 18:09	
Antimony		0.0486	mg/L	0.050	97	90	110			
Arsenic		0.0499	mg/L	0.0050	100	90	110			
Beryllium		0.0240	mg/L	0.0010	96	90	110			
Cadmium		0.0254	mg/L	0.0010	102	90	110			
Chromium		0.0505	mg/L	0.010	101	90	110			
Cobalt		0.0507	mg/L	0.010	101	90	110			
Lead		0.0490	mg/L	0.010	98	90	110			
Molybdenum		0.0460	mg/L	0.0050	92	90	110			
Selenium		0.0507	mg/L	0.0050	101	90	110			
Thallium		0.0491	mg/L	0.10	98	90	110			
Method: E200.8									Batch: 110160	
Lab ID: MB-110160	10	Method Blank				Run: ICPMS202-B_170606A			06/07/17 19:07	
Antimony		0.0002	mg/L	0.00004						
Arsenic		ND	mg/L	0.00006						
Beryllium		0.00002	mg/L	0.00002						
Cadmium		ND	mg/L	0.00002						
Chromium		0.0006	mg/L	0.00009						
Cobalt		0.00004	mg/L	0.00003						
Lead		0.00008	mg/L	0.00005						
Molybdenum		ND	mg/L	0.00007						
Selenium		0.0007	mg/L	0.0002						
Thallium		0.0005	mg/L	0.0001						
Lab ID: LCS-110160	10	Laboratory Control Sample				Run: ICPMS202-B_170606A			06/07/17 19:44	
Antimony		0.500	mg/L	0.0010	100	85	115			
Arsenic		0.513	mg/L	0.0010	103	85	115			
Beryllium		0.235	mg/L	0.0010	94	85	115			
Cadmium		0.256	mg/L	0.0010	103	85	115			
Chromium		0.487	mg/L	0.0050	97	85	115			
Cobalt		0.485	mg/L	0.0050	97	85	115			
Lead		0.509	mg/L	0.0010	102	85	115			
Molybdenum		0.495	mg/L	0.0010	99	85	115			
Selenium		0.502	mg/L	0.0010	100	85	115			
Thallium		0.491	mg/L	0.00050	98	85	115			
Lab ID: B17060205-001BMS3	10	Sample Matrix Spike				Run: ICPMS202-B_170606A			06/07/17 19:46	
Antimony		0.506	mg/L	0.0010	101	70	130			
Arsenic		0.517	mg/L	0.0010	103	70	130			
Beryllium		0.224	mg/L	0.0010	90	70	130			
Cadmium		0.251	mg/L	0.0010	101	70	130			
Chromium		0.514	mg/L	0.0050	103	70	130			
Cobalt		0.504	mg/L	0.0050	101	70	130			
Lead		0.516	mg/L	0.0010	103	70	130			
Molybdenum		0.512	mg/L	0.0010	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: TMPA 6706150060

Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 110160
Lab ID: B17060205-001BMS3	10	Sample Matrix Spike				Run: ICPMS202-B_170606A				06/07/17 19:46
Selenium		0.495	mg/L	0.0011	99	70	130			
Thallium		0.470	mg/L	0.00071	94	70	130			
Lab ID: B17060205-001BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170606A				06/07/17 19:49
Antimony		0.514	mg/L	0.0010	103	70	130	1.6	20	
Arsenic		0.520	mg/L	0.0010	104	70	130	0.6	20	
Beryllium		0.231	mg/L	0.0010	92	70	130	2.9	20	
Cadmium		0.254	mg/L	0.0010	101	70	130	0.9	20	
Chromium		0.517	mg/L	0.0050	103	70	130	0.6	20	
Cobalt		0.505	mg/L	0.0050	101	70	130	0.2	20	
Lead		0.533	mg/L	0.0010	107	70	130	3.2	20	
Molybdenum		0.518	mg/L	0.0010	104	70	130	1.3	20	
Selenium		0.498	mg/L	0.0011	100	70	130	0.6	20	
Thallium		0.487	mg/L	0.00071	97	70	130	3.4	20	
Lab ID: B17060234-001CMS3	10	Sample Matrix Spike				Run: ICPMS202-B_170606A				06/07/17 20:31
Antimony		0.498	mg/L	0.0010	100	70	130			
Arsenic		0.492	mg/L	0.0010	98	70	130			
Beryllium		0.232	mg/L	0.0010	93	70	130			
Cadmium		0.249	mg/L	0.0010	99	70	130			
Chromium		0.489	mg/L	0.0050	98	70	130			
Cobalt		0.489	mg/L	0.0050	98	70	130			
Lead		0.521	mg/L	0.0010	104	70	130			
Molybdenum		0.490	mg/L	0.0010	98	70	130			
Selenium		0.462	mg/L	0.0010	92	70	130			
Thallium		0.489	mg/L	0.00050	98	70	130			
Lab ID: B17060234-001CMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170606A				06/07/17 20:41
Antimony		0.517	mg/L	0.0010	103	70	130	3.7	20	
Arsenic		0.503	mg/L	0.0010	101	70	130	2.1	20	
Beryllium		0.239	mg/L	0.0010	96	70	130	3.1	20	
Cadmium		0.256	mg/L	0.0010	103	70	130	3.1	20	
Chromium		0.508	mg/L	0.0050	102	70	130	3.9	20	
Cobalt		0.502	mg/L	0.0050	100	70	130	2.5	20	
Lead		0.533	mg/L	0.0010	107	70	130	2.3	20	
Molybdenum		0.512	mg/L	0.0010	102	70	130	4.5	20	
Selenium		0.471	mg/L	0.0010	94	70	130	2.1	20	
Thallium		0.497	mg/L	0.00050	99	70	130	1.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency
Report Date: 07/06/17

Project: TMPA 6706150060
Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170605A	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/05/17 13:25	
Mercury		0.00207	mg/L	0.00010	103	90	110			
Method: **E245.1**									Batch: 110170	
Lab ID: **MB-110170**		Method Blank				Run: HGCV202-B_170605A			06/05/17 14:21	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-110170**		Laboratory Control Sample				Run: HGCV202-B_170605A			06/05/17 14:23	
Mercury		0.00204	mg/L	0.00010	102	85	115			
Lab ID: **B17060151-006BMS**		Sample Matrix Spike				Run: HGCV202-B_170605A			06/05/17 14:30	
Mercury		0.00192	mg/L	0.00010	96	70	130			
Lab ID: **B17060151-006BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170605A			06/05/17 14:32	
Mercury		0.00188	mg/L	0.00010	94	70	130	2.1	30	
Lab ID: **B17060226-007CMS**		Sample Matrix Spike				Run: HGCV202-B_170605A			06/05/17 15:11	
Mercury		0.00205	mg/L	0.00010	102	70	130			
Lab ID: **B17060226-007CMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170605A			06/05/17 15:13	
Mercury		0.00204	mg/L	0.00010	102	70	130	0.2	30	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 06/16/17
Project: TMPA 6706150060
Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 110148
Lab ID: B17060204-004A DUP	Sample Duplicate					Run: BAL #SD-15_170602F				06/03/17 08:38
Solids, Total Dissolved TDS @ 180 C		225	mg/L	10				2.3	5	
Lab ID: B17060219-001A DUP	Sample Duplicate					Run: BAL #SD-15_170602F				06/03/17 08:38
Solids, Total Dissolved TDS @ 180 C		442	mg/L	10				1.9	5	
Lab ID: LCS-110148	Laboratory Control Sample					Run: BAL #SD-15_170602F				06/03/17 08:38
Solids, Total Dissolved TDS @ 180 C		994	mg/L	10	99	90	110			
Lab ID: MB-110148	Method Blank					Run: BAL #SD-15_170602F				06/03/17 08:38
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Method: A2540 C										Batch: 110201
Lab ID: MB-110201	Method Blank					Run: BAL #SD-15_170605C				06/05/17 14:09
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-110201	Laboratory Control Sample					Run: BAL #SD-15_170605C				06/05/17 14:09
Solids, Total Dissolved TDS @ 180 C		982	mg/L	10	97	90	110			
Lab ID: B17060205-010A DUP	Sample Duplicate					Run: BAL #SD-15_170605C				06/05/17 14:10
Solids, Total Dissolved TDS @ 180 C		7100	mg/L	97				0.6	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 06/16/17

Project: TMPA 6706150060 **Work Order:** B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170606A	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/06/17 10:55	
Fluoride		1.00	mg/L	0.10	100	90	110			
Method: **A4500-F C**									Batch: R281014	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170606A			06/06/17 10:50	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170606A			06/06/17 10:52	
Fluoride		0.980	mg/L	0.10	98	90	110			
Lab ID: **B17060205-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170606A			06/06/17 13:31	
Fluoride		1.07	mg/L	0.10	99	80	120			
Lab ID: **B17060205-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170606A			06/06/17 13:34	
Fluoride		1.08	mg/L	0.10	100	80	120	0.9	10	
Lab ID: **B17060226-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170606A			06/06/17 14:31	
Fluoride		1.73	mg/L	0.10	107	80	120			
Lab ID: **B17060226-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170606A			06/06/17 14:34	
Fluoride		1.73	mg/L	0.10	107	80	120	0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 06/16/17
Project: TMPA 6706150060
Work Order: B17060205

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170602A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								06/02/17 08:39	
pH		7.95	s.u.	0.10	99	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								06/02/17 15:23	
pH		7.01	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R280836	
Lab ID: **B17060205-002ADUP**	Sample Duplicate					Run: PHSC _101-B_170602A			06/02/17 16:01	
pH		7.39	s.u.	0.10				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 06/16/17

Project: TMPA 6706150060 **Work Order:** B17060205

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 1_170605A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							06/05/17 15:04	
Chloride			2.21	mg/L	1.0	98	90	110			
Sulfate			8.95	mg/L	1.0	99	90	110			
Method:	**E300.0**									Batch: R280991	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 1_170605A			06/05/17 15:23	
Chloride			ND	mg/L	0.009						
Sulfate			0.1	mg/L	0.01						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_170605A			06/05/17 15:43	
Chloride			10.4	mg/L	1.0	104	90	110			
Sulfate			31.5	mg/L	1.0	105	90	110			
Lab ID:	**B17060194-015AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170605A			06/05/17 21:14	
Chloride			232	mg/L	1.2	108	90	110			
Sulfate			1300	mg/L	3.7	101	90	110			
Lab ID:	**B17060194-015AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170605A			06/05/17 21:33	
Chloride			233	mg/L	1.2	108	90	110	0.3	20	
Sulfate			1310	mg/L	3.7	101	90	110	0.1	20	
Lab ID:	**B17060205-005AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170605A			06/06/17 01:47	
Chloride			3040	mg/L	6.1	95	90	110			
Sulfate			4060	mg/L	18	107	90	110			
Lab ID:	**B17060205-005AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170605A			06/06/17 02:07	
Chloride			3040	mg/L	6.1	95	90	110	0.1	20	
Sulfate			4080	mg/L	18	108	90	110	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency B17060205

Login completed by: Kathi Renier
Date Received: 6/2/2017
Reviewed by: BL2000\cindy
Received by: rs4
Reviewed Date: 6/4/2017
Carrier name: FedEx NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 4.6°C, shipping container 2 was 3.6°C, and shipping container 3 was 1.5°C.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	TMPA 6706150060
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MNW-17	5/30/17	1501	4	W					B1706025-1
2	MNW-18		1627							2
3	MNW-16		1801							3
4	EQBK-BJG-053017		1855							4
5	MNW-11	5/31/17	0952							5
6	SFL MW-7		1125							6
7	MNW-15		1251							7
8	AP MW-6		1614							8
9	EQBK-BJG-053117		1515							9
10	DUP-1		—							10

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	6/1/17 @ 12:00	Brian Gieselman		6/2/17	
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					6/2/17 16:20	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17061389 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 10 samples for Texas Municipal Power Agency on 6/14/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17061389-001	SSP/AP MW-1	06/12/17 14:50	06/14/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids. Total Dissolved
B17061389-003	AP MW-4	06/12/17 17:10	06/14/17	Ground Water	Same As Above
B17061389-004	AP MW-3	06/12/17 18:08	06/14/17	Ground Water	Same As Above
B17061389-005	AP MW-5	06/12/17 18:15	06/14/17	Ground Water	Same As Above
B17061389-006	EQBK/SCM/061217	06/12/17 18:58	06/14/17	Ground Water	Same As Above
B17061389-007	SFL MW-6	06/13/17 10:03	06/14/17	Ground Water	Same As Above
B17061389-008	MNW-18	06/13/17 10:05	06/14/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17061389

Revised Date: 12/21/17
Report Date: 07/06/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061389-001
Client Sample ID: SSP/AP MW-1

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/12/17 14:50
DateReceived: 06/14/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	666	mg/L		1		E200.7	06/20/17 00:27 / rlh
Magnesium	169	mg/L		1		E200.7	06/17/17 04:27 / slf
Potassium	58	mg/L		1		E200.7	06/17/17 04:27 / slf
Sodium	1410	mg/L	D	4		E200.7	06/17/17 04:27 / slf
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	06/15/17 11:07 / pjw
Solids, Total Dissolved TDS @ 180 C	6720	mg/L	D	100		A2540 C	06/15/17 08:17 / mnh
INORGANICS							
Chloride	1600	mg/L	D	6		E300.0	06/21/17 02:48 / mej
Sulfate	3060	mg/L	D	20		E300.0	06/21/17 02:48 / mej
Fluoride	0.1	mg/L		0.1		A4500-F C	06/16/17 09:49 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/20/17 13:36 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/20/17 13:36 / jpv
Barium	0.06	mg/L		0.01		E200.7	06/17/17 04:27 / slf
Beryllium	ND	mg/L		0.001		E200.8	06/23/17 00:35 / jpv
Boron	0.74	mg/L		0.05		E200.7	06/17/17 04:27 / slf
Cadmium	ND	mg/L		0.005		E200.8	06/20/17 13:36 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/20/17 13:36 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/20/17 13:36 / jpv
Lead	ND	mg/L		0.01		E200.8	06/23/17 00:35 / jpv
Lithium	1.51	mg/L	D	0.04		E200.7	06/17/17 04:27 / slf
Mercury	ND	mg/L		0.001		E245.1	06/19/17 14:35 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/20/17 13:36 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/20/17 13:36 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/23/17 00:35 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.66	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 228	1.0	pCi/L	U			RA-05	06/29/17 11:52 / eli-ca
Radium 228 precision (±)	0.92	pCi/L				RA-05	06/29/17 11:52 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	06/29/17 11:52 / eli-ca
Radium 226 + Radium 228	1.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061389-003
Client Sample ID: AP MW-4

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/12/17 17:10
DateReceived: 06/14/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	519	mg/L		1		E200.7	06/20/17 00:55 / rlh
Magnesium	123	mg/L		1		E200.7	06/17/17 04:55 / slf
Potassium	48	mg/L		1		E200.7	06/17/17 04:55 / slf
Sodium	540	mg/L	D	2		E200.7	06/17/17 04:55 / slf
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	06/15/17 11:27 / pjw
Solids, Total Dissolved TDS @ 180 C	4130	mg/L	D	40		A2540 C	06/15/17 08:18 / mnh
INORGANICS							
Chloride	526	mg/L	D	3		E300.0	06/21/17 03:27 / mej
Sulfate	2380	mg/L	D	9		E300.0	06/21/17 03:27 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/16/17 09:54 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/20/17 14:00 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/20/17 14:00 / jpv
Barium	0.01	mg/L		0.01		E200.7	06/17/17 04:55 / slf
Beryllium	ND	mg/L		0.001		E200.7	06/17/17 04:55 / slf
Boron	1.95	mg/L		0.05		E200.7	06/17/17 04:55 / slf
Cadmium	ND	mg/L		0.005		E200.8	06/20/17 14:00 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/20/17 14:00 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/20/17 14:00 / jpv
Lead	ND	mg/L		0.01		E200.8	06/23/17 01:02 / jpv
Lithium	0.95	mg/L	D	0.02		E200.7	06/17/17 04:55 / slf
Mercury	ND	mg/L		0.001		E245.1	06/19/17 14:39 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/17/17 04:55 / slf
Selenium	ND	mg/L		0.01		E200.8	06/20/17 14:00 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/23/17 01:02 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.80	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 228	1.4	pCi/L	U			RA-05	06/29/17 12:24 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 226 + Radium 228	2.2	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061389-004
Client Sample ID: AP MW-3

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/12/17 18:08
DateReceived: 06/14/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	129	mg/L		1		E200.7	06/20/17 00:59 / rlh
Magnesium	21	mg/L		1		E200.7	06/17/17 04:58 / slf
Potassium	12	mg/L		1		E200.7	06/17/17 04:58 / slf
Sodium	238	mg/L		1		E200.7	06/17/17 04:58 / slf
PHYSICAL PROPERTIES							
pH	5.4	s.u.	H	0.1		A4500-H B	06/15/17 11:33 / pjw
Solids, Total Dissolved TDS @ 180 C	1400	mg/L	D	20		A2540 C	06/15/17 08:18 / mnh
INORGANICS							
Chloride	152	mg/L		1		E300.0	06/21/17 03:46 / mej
Sulfate	740	mg/L	D	4		E300.0	06/21/17 03:46 / mej
Fluoride	0.1	mg/L		0.1		A4500-F C	06/16/17 09:57 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/20/17 14:03 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/20/17 14:03 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/17/17 04:58 / slf
Beryllium	0.003	mg/L		0.001		E200.7	06/17/17 04:58 / slf
Boron	3.58	mg/L		0.05		E200.7	06/17/17 04:58 / slf
Cadmium	ND	mg/L		0.005		E200.8	06/20/17 14:03 / jpv
Chromium	ND	mg/L		0.01		E200.7	06/17/17 04:58 / slf
Cobalt	0.04	mg/L		0.02		E200.7	06/20/17 00:59 / rlh
Lead	ND	mg/L		0.01		E200.8	06/23/17 01:04 / jpv
Lithium	0.06	mg/L		0.01		E200.7	06/20/17 00:59 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/19/17 14:41 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/17/17 04:58 / slf
Selenium	ND	mg/L		0.01		E200.8	06/20/17 14:03 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/23/17 01:04 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.86	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 228	1.6	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 precision (±)	0.90	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 226 + Radium 228	2.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061389-005
Client Sample ID: AP MW-5

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/12/17 18:15
DateReceived: 06/14/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	512	mg/L		1		E200.7	06/20/17 01:02 / rlh
Magnesium	121	mg/L		1		E200.7	06/17/17 05:02 / slf
Potassium	45	mg/L		1		E200.7	06/17/17 05:02 / slf
Sodium	704	mg/L	D	4		E200.7	06/17/17 05:02 / slf
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	06/15/17 11:35 / pjw
Solids, Total Dissolved TDS @ 180 C	4830	mg/L	D	40		A2540 C	06/15/17 08:18 / mnh
INORGANICS							
Chloride	479	mg/L	D	6		E300.0	06/21/17 04:06 / mej
Sulfate	2900	mg/L	D	20		E300.0	06/21/17 04:06 / mej
Fluoride	1.0	mg/L		0.1		A4500-F C	06/16/17 10:08 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/20/17 14:16 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	06/20/17 14:16 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/17/17 05:02 / slf
Beryllium	0.081	mg/L		0.001		E200.8	06/23/17 01:07 / jpv
Boron	3.38	mg/L		0.05		E200.7	06/17/17 05:02 / slf
Cadmium	0.010	mg/L		0.005		E200.8	06/20/17 14:16 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/20/17 14:16 / jpv
Cobalt	0.19	mg/L		0.02		E200.8	06/20/17 14:16 / jpv
Lead	ND	mg/L		0.01		E200.8	06/20/17 14:16 / jpv
Lithium	0.59	mg/L	D	0.04		E200.7	06/17/17 05:02 / slf
Mercury	ND	mg/L		0.001		E245.1	06/19/17 14:43 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/20/17 14:16 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/20/17 14:16 / jpv
Thallium	0.002	mg/L		0.002		E200.8	06/20/17 14:16 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.6	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 precision (±)	0.39	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 228	0.49	pCi/L	U			RA-05	06/29/17 12:24 / eli-ca
Radium 228 precision (±)	0.92	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 226 + Radium 228	2.1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061389-006
Client Sample ID: EQBK/SCM/061217

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/12/17 18:58
DateReceived: 06/14/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	06/20/17 01:06 / rlh
Magnesium	ND	mg/L		1		E200.7	06/17/17 05:05 / slf
Potassium	ND	mg/L		1		E200.7	06/17/17 05:05 / slf
Sodium	ND	mg/L		1		E200.7	06/17/17 05:05 / slf
PHYSICAL PROPERTIES							
pH	5.7	s.u.	H	0.1		A4500-H B	06/15/17 11:38 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/15/17 08:18 / mnh
INORGANICS							
Chloride	ND	mg/L		1		E300.0	06/21/17 04:25 / mej
Sulfate	ND	mg/L		1		E300.0	06/21/17 04:25 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/16/17 10:16 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/20/17 14:20 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/20/17 14:20 / jpv
Barium	ND	mg/L		0.01		E200.7	06/17/17 05:05 / slf
Beryllium	ND	mg/L		0.001		E200.7	06/17/17 05:05 / slf
Boron	ND	mg/L		0.05		E200.7	06/17/17 05:05 / slf
Cadmium	ND	mg/L		0.005		E200.7	06/17/17 05:05 / slf
Chromium	ND	mg/L		0.01		E200.7	06/17/17 05:05 / slf
Cobalt	ND	mg/L		0.02		E200.7	06/20/17 01:06 / rlh
Lead	ND	mg/L		0.01		E200.8	06/20/17 14:20 / jpv
Lithium	ND	mg/L		0.01		E200.7	06/17/17 05:05 / slf
Mercury	ND	mg/L		0.001		E245.1	06/19/17 14:45 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/17/17 05:05 / slf
Selenium	ND	mg/L		0.01		E200.8	06/20/17 14:20 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/20/17 14:20 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.17	pCi/L	U			E903.0	07/04/17 09:35 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 228	-0.7	pCi/L	U			RA-05	06/29/17 12:24 / eli-ca
Radium 228 precision (±)	0.93	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 226 + Radium 228	-0.5	pCi/L	U			A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061389-007
Client Sample ID: SFL MW-6

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/13/17 10:03
DateReceived: 06/14/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	892	mg/L	D	2		E200.7	06/20/17 01:09 / rlh
Magnesium	238	mg/L		1		E200.7	06/20/17 01:09 / rlh
Potassium	68	mg/L		1		E200.7	06/20/17 01:09 / rlh
Sodium	1420	mg/L	D	8		E200.7	06/17/17 05:09 / slf
PHYSICAL PROPERTIES							
pH	4.1	s.u.	H	0.1		A4500-H B	06/15/17 11:40 / pjw
Solids, Total Dissolved TDS @ 180 C	9200	mg/L	D	90		A2540 C	06/15/17 08:19 / mnh
INORGANICS							
Chloride	3640	mg/L	D	10		E300.0	06/21/17 04:45 / mej
Sulfate	2330	mg/L	D	40		E300.0	06/21/17 04:45 / mej
Fluoride	0.7	mg/L		0.1		A4500-F C	06/16/17 10:27 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/20/17 14:23 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/20/17 14:23 / jpv
Barium	0.04	mg/L		0.01		E200.7	06/20/17 01:09 / rlh
Beryllium	0.047	mg/L		0.001		E200.8	06/23/17 01:10 / jpv
Boron	0.16	mg/L	D	0.07		E200.7	06/17/17 05:09 / slf
Cadmium	0.011	mg/L		0.005		E200.8	06/20/17 14:23 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/20/17 14:23 / jpv
Cobalt	0.11	mg/L		0.02		E200.8	06/20/17 14:23 / jpv
Lead	ND	mg/L		0.01		E200.8	06/20/17 14:23 / jpv
Lithium	0.69	mg/L	D	0.09		E200.7	06/17/17 05:09 / slf
Mercury	ND	mg/L		0.001		E245.1	06/19/17 14:47 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/20/17 14:23 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/20/17 14:23 / jpv
Thallium	0.004	mg/L		0.002		E200.8	06/20/17 14:23 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	3.5	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 precision (±)	0.74	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 09:35 / eli-ca
Radium 228	5.5	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 226 + Radium 228	9.0	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.6	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061389-008
Client Sample ID: MNW-18

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/13/17 10:05
DateReceived: 06/14/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	350	mg/L		1		E200.7	06/20/17 01:13 / rlh
Magnesium	61	mg/L		1		E200.7	06/17/17 05:12 / slf
Potassium	36	mg/L		1		E200.7	06/17/17 05:12 / slf
Sodium	771	mg/L	D	2		E200.7	06/17/17 05:12 / slf
PHYSICAL PROPERTIES							
pH	7.2	s.u.	H	0.1		A4500-H B	06/15/17 11:43 / pjw
Solids, Total Dissolved TDS @ 180 C	3670	mg/L	D	40		A2540 C	06/15/17 08:19 / mnh
INORGANICS							
Chloride	543	mg/L	D	3		E300.0	06/20/17 14:21 / mej
Sulfate	1790	mg/L	D	9		E300.0	06/20/17 14:21 / mej
Fluoride	0.2	mg/L		0.1		A4500-F C	06/16/17 10:29 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/20/17 14:27 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/20/17 14:27 / jpv
Barium	0.05	mg/L		0.01		E200.7	06/17/17 05:12 / slf
Beryllium	ND	mg/L		0.001		E200.7	06/17/17 05:12 / slf
Boron	0.44	mg/L		0.05		E200.7	06/17/17 05:12 / slf
Cadmium	ND	mg/L		0.005		E200.8	06/20/17 14:27 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/20/17 14:27 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/20/17 14:27 / jpv
Lead	ND	mg/L		0.01		E200.8	06/20/17 14:27 / jpv
Lithium	0.48	mg/L	D	0.02		E200.7	06/17/17 05:12 / slf
Mercury	ND	mg/L		0.001		E245.1	06/19/17 14:49 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/17/17 05:12 / slf
Selenium	ND	mg/L		0.01		E200.8	06/20/17 14:27 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/20/17 14:27 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	2.3	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 precision (±)	0.52	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 228	2.6	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 226 + Radium 228	4.8	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 07/05/17
Work Order: B17061389

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8538
Lab ID: LCS-RA226-8538	Laboratory Control Sample				Run: G542M_170622A				07/04/17 09:35
Radium 226	11	pCi/L		107	80	120			
Lab ID: MB-RA226-8538	Method Blank				Run: G542M_170622A				07/04/17 09:35
Radium 226	0.2	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17061389-002CMS	Sample Matrix Spike				Run: G542M_170622A				07/04/17 09:35
Radium 226	17	pCi/L		77	70	130			
Lab ID: B17061389-002CMSD	Sample Matrix Spike Duplicate				Run: G542M_170622A				07/04/17 09:35
Radium 226	18	pCi/L		83	70	130	7.0	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 07/05/17
Work Order: B17061389

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5525
Lab ID: LCS-228-RA226-8538	Laboratory Control Sample				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	8.6	pCi/L		86	80	120			
Lab ID: MB-RA226-8538	Method Blank				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	0.6	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: B17061389-010CMS	Sample Matrix Spike				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	26	pCi/L		123	70	130			
Lab ID: B17061389-010CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	24	pCi/L		111	70	130	9.0	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170616A	
Lab ID: **ICV**	10	Continuing Calibration Verification Standard							06/16/17 10:53	
Barium		2.54	mg/L	0.10	102	95	105			
Beryllium		1.18	mg/L	0.010	95	95	105			
Boron		2.41	mg/L	0.10	96	95	105			
Cadmium		2.41	mg/L	0.010	96	95	105			
Chromium		2.44	mg/L	0.050	97	95	105			
Lithium		1.28	mg/L	0.10	102	95	105			
Magnesium		25.0	mg/L	1.0	100	95	105			
Molybdenum		2.40	mg/L	0.10	96	95	105			
Potassium		25.6	mg/L	1.0	102	95	105			
Sodium		25.6	mg/L	1.0	103	95	105			
Method: **E200.7**									Batch: 110555	
Lab ID: **MB-110555**	10	Method Blank				Run: ICP203-B_170616A			06/17/17 04:20	
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Chromium		ND	mg/L	0.002						
Lithium		0.006	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: **LCS-110555**	10	Laboratory Control Sample				Run: ICP203-B_170616A			06/17/17 04:23	
Barium		0.497	mg/L	0.10	99	85	115			
Beryllium		0.246	mg/L	0.010	99	85	115			
Boron		0.464	mg/L	0.10	93	85	115			
Cadmium		0.253	mg/L	0.010	101	85	115			
Chromium		0.483	mg/L	0.050	97	85	115			
Lithium		0.531	mg/L	0.10	105	85	115			
Magnesium		26.2	mg/L	1.0	105	85	115			
Molybdenum		0.504	mg/L	0.10	101	85	115			
Potassium		26.3	mg/L	1.0	105	85	115			
Sodium		26.3	mg/L	1.0	105	85	115			
Lab ID: **B17061389-001BMS3**	10	Sample Matrix Spike				Run: ICP203-B_170616A			06/17/17 04:37	
Barium		0.552	mg/L	0.050	99	70	130			
Beryllium		0.252	mg/L	0.0014	101	70	130			
Boron		1.24	mg/L	0.050	102	70	130			
Cadmium		0.251	mg/L	0.0099	100	70	130			
Chromium		0.478	mg/L	0.020	96	70	130			
Lithium		1.97	mg/L	0.10	93	70	130			
Magnesium		191	mg/L	1.0		70	130			A
Molybdenum		0.500	mg/L	0.071	100	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 110555	
Lab ID: B17061389-001BMS3	10	Sample Matrix Spike				Run: ICP203-B_170616A			06/17/17 04:37	
Potassium		82.4	mg/L	1.0	98	70	130			
Sodium		1410	mg/L	4.2		70	130			A
Lab ID: B17061389-001BMSD	10	Sample Matrix Spike Duplicate				Run: ICP203-B_170616A			06/17/17 04:41	
Barium		0.566	mg/L	0.050	102	70	130	2.5	20	
Beryllium		0.259	mg/L	0.0014	103	70	130	2.4	20	
Boron		1.26	mg/L	0.050	105	70	130	1.5	20	
Cadmium		0.258	mg/L	0.0099	103	70	130	2.7	20	
Chromium		0.480	mg/L	0.020	96	70	130	0.5	20	
Lithium		2.02	mg/L	0.10	102	70	130	2.2	20	
Magnesium		195	mg/L	1.0		70	130	2.0	20	A
Molybdenum		0.497	mg/L	0.071	99	70	130	0.5	20	
Potassium		84.3	mg/L	1.0	105	70	130	2.2	20	
Sodium		1440	mg/L	4.2		70	130	2.4	20	A
Lab ID: B17061403-002AMS3	10	Sample Matrix Spike				Run: ICP203-B_170616A			06/17/17 05:55	
Barium		0.557	mg/L	0.050	98	70	130			
Beryllium		0.252	mg/L	0.0010	101	70	130			
Boron		0.609	mg/L	0.050	99	70	130			
Cadmium		0.243	mg/L	0.0020	97	70	130			
Chromium		0.464	mg/L	0.0050	93	70	130			
Lithium		0.586	mg/L	0.10	105	70	130			
Magnesium		50.5	mg/L	1.0	107	70	130			
Molybdenum		0.488	mg/L	0.014	98	70	130			
Potassium		96.2	mg/L	1.0	102	70	130			
Sodium		180	mg/L	1.0		70	130			A
Lab ID: B17061403-002AMSD	10	Sample Matrix Spike Duplicate				Run: ICP203-B_170616A			06/17/17 05:58	
Barium		0.553	mg/L	0.050	97	70	130	0.7	20	
Beryllium		0.246	mg/L	0.0010	98	70	130	2.4	20	
Boron		0.607	mg/L	0.050	98	70	130	0.3	20	
Cadmium		0.248	mg/L	0.0020	99	70	130	1.8	20	
Chromium		0.468	mg/L	0.0050	94	70	130	0.7	20	
Lithium		0.577	mg/L	0.10	103	70	130	1.5	20	
Magnesium		48.9	mg/L	1.0	101	70	130	3.2	20	
Molybdenum		0.498	mg/L	0.014	100	70	130	1.9	20	
Potassium		94.2	mg/L	1.0	95	70	130	2.1	20	
Sodium		176	mg/L	1.0		70	130	2.1	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170619A	
Lab ID: ICV	7	Continuing Calibration Verification Standard							06/19/17 12:09	
Barium		2.46	mg/L	0.10	98	95	105			
Cadmium		2.41	mg/L	0.010	96	95	105			
Calcium		24.5	mg/L	1.0	98	95	105			
Cobalt		2.36	mg/L	0.020	95	95	105			
Lithium		1.29	mg/L	0.10	103	95	105			
Magnesium		24.7	mg/L	1.0	99	95	105			
Potassium		25.6	mg/L	1.0	102	95	105			
Method: E200.7									Batch: 110555	
Lab ID: MB-110555	7	Method Blank				Run: ICP203-B_170619A			06/20/17 00:20	
Barium		ND	mg/L	0.0005						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Cobalt		ND	mg/L	0.005						
Lithium		0.006	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Lab ID: LCS-110555	7	Laboratory Control Sample				Run: ICP203-B_170619A			06/20/17 00:24	
Barium		0.502	mg/L	0.10	100	85	115			
Cadmium		0.273	mg/L	0.010	109	85	115			
Calcium		26.4	mg/L	1.0	106	85	115			
Cobalt		0.542	mg/L	0.050	108	85	115			
Lithium		0.529	mg/L	0.10	105	85	115			
Magnesium		26.5	mg/L	1.0	106	85	115			
Potassium		26.1	mg/L	1.0	104	85	115			
Lab ID: B17061389-001BMS3	7	Sample Matrix Spike				Run: ICP203-B_170619A			06/20/17 00:38	
Barium		0.541	mg/L	0.050	98	70	130			
Cadmium		0.257	mg/L	0.0099	103	70	130			
Calcium		689	mg/L	1.0		70	130			A
Cobalt		0.532	mg/L	0.052	106	70	130			
Lithium		1.89	mg/L	0.10	94	70	130			
Magnesium		186	mg/L	1.0		70	130			A
Potassium		78.5	mg/L	1.0	101	70	130			
Lab ID: B17061389-001BMSD	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170619A			06/20/17 00:41	
Barium		0.549	mg/L	0.050	99	70	130	1.3	20	
Cadmium		0.264	mg/L	0.0099	106	70	130	2.7	20	
Calcium		690	mg/L	1.0		70	130	0.1	20	A
Cobalt		0.529	mg/L	0.052	106	70	130	0.6	20	
Lithium		1.92	mg/L	0.10	100	70	130	1.6	20	
Magnesium		187	mg/L	1.0		70	130	0.3	20	A
Potassium		79.5	mg/L	1.0	104	70	130	1.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS202-B_170622A	
Lab ID: QCS	3	Initial Calibration Verification Standard							06/22/17 19:30	
Beryllium		0.0251	mg/L	0.0010	100	90	110			
Lead		0.0496	mg/L	0.010	99	90	110			
Thallium		0.0495	mg/L	0.10	99	90	110			
Method: E200.8									Batch: 110555	
Lab ID: MB-110555	3	Method Blank				Run: ICPMS202-B_170622A			06/23/17 00:33	
Beryllium		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00005						
Thallium		ND	mg/L	0.0001						
Lab ID: LCS-110555	3	Laboratory Control Sample				Run: ICPMS202-B_170622A			06/23/17 00:38	
Beryllium		0.225	mg/L	0.0010	90	85	115			
Lead		0.512	mg/L	0.0010	102	85	115			
Thallium		0.460	mg/L	0.00050	92	85	115			
Lab ID: B17061389-001BMS3	3	Sample Matrix Spike				Run: ICPMS202-B_170622A			06/23/17 00:41	
Beryllium		0.221	mg/L	0.0010	88	70	130			
Lead		0.517	mg/L	0.0010	103	70	130			
Thallium		0.470	mg/L	0.00071	94	70	130			
Lab ID: B17061389-001BMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170622A			06/23/17 00:43	
Beryllium		0.220	mg/L	0.0010	88	70	130	0.4	20	
Lead		0.510	mg/L	0.0010	101	70	130	1.5	20	
Thallium		0.461	mg/L	0.00071	92	70	130	2.0	20	
Lab ID: B17061403-002AMS3	3	Sample Matrix Spike				Run: ICPMS202-B_170622A			06/23/17 01:29	
Beryllium		0.218	mg/L	0.0010	87	70	130			
Lead		0.525	mg/L	0.0010	105	70	130			
Thallium		0.479	mg/L	0.00050	96	70	130			
Lab ID: B17061403-002AMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170622A			06/23/17 01:31	
Beryllium		0.213	mg/L	0.0010	85	70	130	2.0	20	
Lead		0.522	mg/L	0.0010	104	70	130	0.7	20	
Thallium		0.468	mg/L	0.00050	94	70	130	2.3	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170619A	
Lab ID: QCS	9	Initial Calibration Verification Standard							06/20/17 06:13	
Antimony		0.0493	mg/L	0.050	99	90	110			
Arsenic		0.0477	mg/L	0.0050	95	90	110			
Cadmium		0.0251	mg/L	0.0010	101	90	110			
Chromium		0.0475	mg/L	0.010	95	90	110			
Cobalt		0.0491	mg/L	0.010	98	90	110			
Lead		0.0482	mg/L	0.010	96	90	110			
Molybdenum		0.0463	mg/L	0.0050	93	90	110			
Selenium		0.0493	mg/L	0.0050	99	90	110			
Thallium		0.0494	mg/L	0.10	99	90	110			
Method: E200.8									Batch: 110555	
Lab ID: MB-110555	9	Method Blank				Run: ICPMS206-B_170619A			06/20/17 13:33	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		0.00004	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00002	mg/L	7E-06						
Lab ID: LCS-110555	9	Laboratory Control Sample				Run: ICPMS206-B_170619A			06/20/17 13:39	
Antimony		0.513	mg/L	0.0010	103	85	115			
Arsenic		0.495	mg/L	0.0010	99	85	115			
Cadmium		0.253	mg/L	0.0010	101	85	115			
Chromium		0.478	mg/L	0.0050	96	85	115			
Cobalt		0.498	mg/L	0.0050	100	85	115			
Lead		0.491	mg/L	0.0010	98	85	115			
Molybdenum		0.481	mg/L	0.0010	96	85	115			
Selenium		0.490	mg/L	0.0010	98	85	115			
Thallium		0.479	mg/L	0.00050	96	85	115			
Lab ID: B17061389-001BMS3	9	Sample Matrix Spike				Run: ICPMS206-B_170619A			06/20/17 13:43	
Antimony		0.474	mg/L	0.0010	95	70	130			
Arsenic		0.489	mg/L	0.0010	96	70	130			
Cadmium		0.238	mg/L	0.0010	95	70	130			
Chromium		0.474	mg/L	0.0050	95	70	130			
Cobalt		0.468	mg/L	0.0050	93	70	130			
Lead		0.464	mg/L	0.0010	92	70	130			
Molybdenum		0.469	mg/L	0.0010	94	70	130			
Selenium		0.504	mg/L	0.0018	101	70	130			
Thallium		0.456	mg/L	0.00050	91	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 110555
Lab ID: B17061389-001BMSD	9	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170619A				06/20/17 13:46
Antimony		0.510	mg/L	0.0010	102	70	130	7.5	20	
Arsenic		0.529	mg/L	0.0010	104	70	130	7.9	20	
Cadmium		0.252	mg/L	0.0010	101	70	130	5.6	20	
Chromium		0.506	mg/L	0.0050	101	70	130	6.6	20	
Cobalt		0.512	mg/L	0.0050	102	70	130	9.0	20	
Lead		0.518	mg/L	0.0010	103	70	130	11	20	
Molybdenum		0.512	mg/L	0.0010	102	70	130	8.7	20	
Selenium		0.514	mg/L	0.0018	103	70	130	2.2	20	
Thallium		0.497	mg/L	0.00050	99	70	130	8.6	20	
Lab ID: B17061403-002AMS3	9	Sample Matrix Spike				Run: ICPMS206-B_170619A				06/20/17 15:10
Antimony		0.488	mg/L	0.0010	97	70	130			
Arsenic		0.475	mg/L	0.0010	95	70	130			
Cadmium		0.240	mg/L	0.0010	96	70	130			
Chromium		0.469	mg/L	0.0050	94	70	130			
Cobalt		0.483	mg/L	0.0050	96	70	130			
Lead		0.460	mg/L	0.0010	92	70	130			
Molybdenum		0.467	mg/L	0.0010	93	70	130			
Selenium		0.487	mg/L	0.0010	97	70	130			
Thallium		0.455	mg/L	0.00050	91	70	130			
Lab ID: B17061403-002AMSD	9	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170619A				06/20/17 15:14
Antimony		0.493	mg/L	0.0010	99	70	130	1.2	20	
Arsenic		0.470	mg/L	0.0010	94	70	130	1.0	20	
Cadmium		0.238	mg/L	0.0010	95	70	130	0.7	20	
Chromium		0.467	mg/L	0.0050	93	70	130	0.6	20	
Cobalt		0.499	mg/L	0.0050	100	70	130	3.4	20	
Lead		0.469	mg/L	0.0010	94	70	130	1.9	20	
Molybdenum		0.478	mg/L	0.0010	95	70	130	2.2	20	
Selenium		0.486	mg/L	0.0010	97	70	130	0.1	20	
Thallium		0.471	mg/L	0.00050	94	70	130	3.4	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170619A	
Lab ID: **ICV**	Initial Calibration Verification Standard								06/19/17 14:20	
Mercury		0.00193	mg/L	0.00010	97	90	110			
Method: **E245.1**									Batch: 110626	
Lab ID: **MB-110626**	Method Blank					Run: HGCV202-B_170619A			06/19/17 14:26	
Mercury		0.00001	mg/L	6E-06						
Lab ID: **LCS-110626**	Laboratory Control Sample					Run: HGCV202-B_170619A			06/19/17 14:28	
Mercury		0.00194	mg/L	0.00010	96	85	115			
Lab ID: **B17061363-001EMS**	Sample Matrix Spike					Run: HGCV202-B_170619A			06/19/17 14:32	
Mercury		0.00202	mg/L	0.00010	100	70	130			
Lab ID: **B17061363-001EMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170619A			06/19/17 14:34	
Mercury		0.00202	mg/L	0.00010	101	70	130	0.2	30	
Lab ID: **B17061476-004BMS**	Sample Matrix Spike					Run: HGCV202-B_170619A			06/19/17 15:15	
Mercury		0.0182	mg/L	0.00050	90	70	130			
Lab ID: **B17061476-004BMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170619A			06/19/17 15:17	
Mercury		0.0184	mg/L	0.00050	91	70	130	1.2	30	
Method: **E245.1**									Analytical Run: HGCV202-B_170621A	
Lab ID: **ICV**	Initial Calibration Verification Standard								06/21/17 09:52	
Mercury		0.00200	mg/L	0.00010	100	90	110			
Method: **E245.1**									Batch: 110731	
Lab ID: **MB-110731**	Method Blank					Run: HGCV202-B_170621A			06/21/17 11:20	
Mercury		0.00002	mg/L	6E-06						
Lab ID: **LCS-110731**	Laboratory Control Sample					Run: HGCV202-B_170621A			06/21/17 11:22	
Mercury		0.00207	mg/L	0.00010	102	85	115			
Lab ID: **B17061648-004BMS**	Sample Matrix Spike					Run: HGCV202-B_170621A			06/21/17 11:46	
Mercury		0.00207	mg/L	0.00010	103	70	130			
Lab ID: **B17061648-004BMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170621A			06/21/17 11:48	
Mercury		0.00213	mg/L	0.00010	106	70	130	3.0	30	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 06/28/17
Project: CCRR
Work Order: B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: 110591
Lab ID: **MB-110591**		Method Blank				Run: BAL #SD-15_170615D				06/15/17 08:15
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: **LCS-110591**		Laboratory Control Sample				Run: BAL #SD-15_170615D				06/15/17 08:16
Solids, Total Dissolved TDS @ 180 C		983	mg/L	10	99	90	110			
Lab ID: **B17061344-003B DUP**		Sample Duplicate				Run: BAL #SD-15_170615D				06/15/17 08:17
Solids, Total Dissolved TDS @ 180 C		52.7	mg/L	10				0.4	5	
Lab ID: **B17061389-006A DUP**		Sample Duplicate				Run: BAL #SD-15_170615D				06/15/17 08:19
Solids, Total Dissolved TDS @ 180 C		5.98	mg/L	10					5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 06/28/17

Project: CCRR **Work Order:** B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170616A	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/16/17 08:54	
Fluoride		1.02	mg/L	0.10	102	90	110			
Method: **A4500-F C**									Batch: R281619	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170616A			06/16/17 08:49	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170616A			06/16/17 08:51	
Fluoride		1.01	mg/L	0.10	101	90	110			
Lab ID: **B17061377-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170616A			06/16/17 09:43	
Fluoride		3.40	mg/L	0.10	98	80	120			
Lab ID: **B17061377-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170616A			06/16/17 09:45	
Fluoride		3.35	mg/L	0.10	93	80	120	1.5	10	
Lab ID: **B17061389-010AMS**		Sample Matrix Spike				Run: MAN-TECH_170616A			06/16/17 11:25	
Fluoride		1.45	mg/L	0.10	66	80	120			S
Lab ID: **B17061389-010AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170616A			06/16/17 11:31	
Fluoride		1.44	mg/L	0.10	65	80	120	0.7	10	S

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 06/28/17

Project: CCRR **Work Order:** B17061389

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170615A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								06/15/17 08:40	
pH		7.99	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R281480	
Lab ID: **B17061388-001ADUP**	Sample Duplicate					Run: PHSC _101-B_170615A			06/15/17 11:01	
pH		7.91	s.u.	0.10				0.1	3	
Lab ID: **B17061389-003ADUP**	Sample Duplicate					Run: PHSC _101-B_170615A			06/15/17 11:30	
pH		5.87	s.u.	0.10				0.2	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 06/28/17

Project: CCRR **Work Order:** B17061389

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 1_170620A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							06/20/17 10:14	
Chloride			2.25	mg/L	1.0	100	90	110			
Sulfate			9.05	mg/L	1.0	101	90	110			
Method:	**E300.0**									Batch: R281841	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 1_170620A			06/20/17 10:34	
Chloride			ND	mg/L	0.009						
Sulfate			ND	mg/L	0.01						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_170620A			06/20/17 10:53	
Chloride			10.3	mg/L	1.0	103	90	110			
Sulfate			30.6	mg/L	1.0	102	90	110			
Lab ID:	**B17061355-003AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170620A			06/21/17 01:30	
Chloride			52.9	mg/L	1.0	105	90	110			
Sulfate			272	mg/L	1.0	104	90	110			
Lab ID:	**B17061355-003AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170620A			06/21/17 01:50	
Chloride			53.1	mg/L	1.0	105	90	110	0.3	20	
Sulfate			272	mg/L	1.0	104	90	110	0.0	20	
Method:	**E300.0**									Analytical Run: IC METROHM 2_170620A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							06/20/17 13:03	
Chloride			2.23	mg/L	1.0	99	90	110			
Sulfate			9.00	mg/L	1.0	100	90	110			
Method:	**E300.0**									Batch: R281847	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 2_170620A			06/20/17 13:23	
Chloride			ND	mg/L	0.002						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_170620A			06/20/17 13:42	
Chloride			10.3	mg/L	1.0	103	90	110			
Sulfate			30.6	mg/L	1.0	102	90	110			
Lab ID:	**B17061389-008AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170620A			06/20/17 14:41	
Chloride			1050	mg/L	3.1	101	90	110			
Sulfate			3270	mg/L	9.2	99	90	110			
Lab ID:	**B17061389-008AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170620A			06/20/17 15:00	
Chloride			1050	mg/L	3.1	101	90	110	0.2	20	
Sulfate			3300	mg/L	9.2	101	90	110	0.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency

B17061389

Login completed by: Tabitha Edwards
Date Received: 6/14/2017

Reviewed by: BL2000\gmccartney
Received by: rs4

Reviewed Date: 6/17/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 3.9°C, shipping container 2 was 2.6°C and shipping container 3 was 3.4°C,

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc	Client: Texas Municipal Power Agency Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SSP/AP MW-1	6/12/17	1450	4	W	X	X			B17061389-001
2	AP MW-6		1605							002
3	AP MW-4		1710							003
4	AP MW-3		1808							004
5	AP MW-5		1815							005
6	EQBK/SCM/061217		1858							006
7	SFL MW-6	6/13/17	1003							007
8	MNW-18		1005							008
9	APMW-2		1430							009
10	DUP-1		—							010

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	6/13/17 @ 18:15	Brian Gieselman			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					6/14/17 9:45	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17061657 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 19 samples for Texas Municipal Power Agency on 6/16/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17061657-001	APMW-1D	06/13/17 15:40	06/16/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B17061657-003	SSP MW-3	06/13/17 18:25	06/16/17	Ground Water	Same As Above
B17061657-004	EQBK/SCM/061317	06/13/17 19:15	06/16/17	Ground Water	Same As Above
B17061657-005	DUP-2	06/13/17 0:00	06/16/17	Ground Water	Same As Above
B17061657-006	SFL MW-5	06/14/17 10:30	06/16/17	Ground Water	Same As Above
B17061657-007	SSP MW-2	06/14/17 10:34	06/16/17	Ground Water	Same As Above
B17061657-008	SFL MW-2	06/14/17 11:30	06/16/17	Ground Water	Same As Above
B17061657-009	SSP MW-4	06/14/17 11:49	06/16/17	Ground Water	Same As Above
B17061657-010	EQBK-BJG-061417	06/14/17 12:55	06/16/17	Ground Water	Same As Above
B17061657-011	EQBK/SCM/061417	06/14/17 12:55	06/16/17	Ground Water	Same As Above
B17061657-013	MNW-15	06/14/17 14:20	06/16/17	Ground Water	Same As Above
B17061657-015	SFL MW-7	06/14/17 15:30	06/16/17	Ground Water	Same As Above
B17061657-017	SFL MW-3	06/14/17 16:50	06/16/17	Ground Water	Same As Above
B17061657-018	SFL MW-4	06/14/17 17:45	06/16/17	Ground Water	Same As Above
B17061657-019	DUP-3	06/14/17 0:00	06/16/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

ANALYTICAL SUMMARY REPORT

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17061657

Revised Date: 12/21/17
Report Date: 07/06/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-001
Client Sample ID: APMW-1D

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/13/17 15:40
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	71	mg/L		1		E200.7	06/21/17 03:17 / rlh
Magnesium	13	mg/L		1		E200.7	06/21/17 03:17 / rlh
Potassium	11	mg/L		1		E200.7	06/21/17 03:17 / rlh
Sodium	297	mg/L		1		E200.7	06/21/17 03:17 / rlh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	06/16/17 14:29 / pjw
Solids, Total Dissolved TDS @ 180 C	1310	mg/L	D	20		A2540 C	06/16/17 13:53 / rik
INORGANICS							
Chloride	229	mg/L		1		E300.0	06/22/17 20:46 / mej
Sulfate	525	mg/L	D	4		E300.0	06/22/17 20:46 / mej
Fluoride	0.6	mg/L		0.1		A4500-F C	06/21/17 15:20 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 01:15 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 01:15 / jpv
Barium	0.01	mg/L		0.01		E200.7	06/21/17 03:17 / rlh
Beryllium	ND	mg/L		0.001		E200.7	06/21/17 03:17 / rlh
Boron	4.59	mg/L		0.05		E200.7	06/21/17 03:17 / rlh
Cadmium	ND	mg/L		0.005		E200.7	06/21/17 03:17 / rlh
Chromium	ND	mg/L		0.01		E200.7	06/21/17 03:17 / rlh
Cobalt	ND	mg/L		0.02		E200.7	06/21/17 03:17 / rlh
Lead	ND	mg/L		0.01		E200.8	06/23/17 01:15 / jpv
Lithium	0.04	mg/L		0.01		E200.7	06/21/17 03:17 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:09 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/21/17 03:17 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/23/17 01:15 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 17:16 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.37	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 228	0.37	pCi/L	U			RA-05	06/29/17 12:24 / eli-ca
Radium 228 precision (±)	0.94	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	06/29/17 12:24 / eli-ca
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-003
Client Sample ID: SSP MW-3

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/13/17 18:25
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	673	mg/L		1		E200.7	06/21/17 03:46 / rlh
Magnesium	172	mg/L		1		E200.7	06/21/17 03:46 / rlh
Potassium	47	mg/L		1		E200.7	06/21/17 03:46 / rlh
Sodium	1050	mg/L	D	4		E200.7	06/21/17 03:46 / rlh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	06/16/17 14:35 / pjw
Solids, Total Dissolved TDS @ 180 C	6370	mg/L	D	100		A2540 C	06/16/17 13:54 / rik
INORGANICS							
Chloride	1810	mg/L	D	6		E300.0	06/22/17 22:43 / mej
Sulfate	2510	mg/L	D	20		E300.0	06/22/17 22:43 / mej
Fluoride	0.7	mg/L		0.1		A4500-F C	06/21/17 15:36 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 01:51 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 01:51 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/21/17 03:46 / rlh
Beryllium	0.116	mg/L		0.001		E200.8	06/27/17 17:42 / jpv
Boron	2.84	mg/L		0.05		E200.7	06/21/17 03:46 / rlh
Cadmium	0.066	mg/L		0.005		E200.8	06/23/17 01:51 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 01:51 / jpv
Cobalt	0.56	mg/L		0.02		E200.8	06/23/17 01:51 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 17:42 / jpv
Lithium	0.67	mg/L	D	0.04		E200.7	06/21/17 03:46 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:20 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 01:51 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 01:51 / jpv
Thallium	0.010	mg/L		0.002		E200.8	06/27/17 17:42 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	7.1	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 precision (±)	1.4	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 228	21	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 228 precision (±)	4.0	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 226 + Radium 228	28.4	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	4.3	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-004
Client Sample ID: EQBK/SCM/061317

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/13/17 19:15
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	06/21/17 03:49 / rlh
Magnesium	ND	mg/L		1		E200.7	06/21/17 03:49 / rlh
Potassium	ND	mg/L		1		E200.7	06/21/17 03:49 / rlh
Sodium	1	mg/L		1		E200.7	06/21/17 03:49 / rlh
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	06/16/17 14:37 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/16/17 13:54 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	06/22/17 23:02 / mej
Sulfate	ND	mg/L		1		E300.0	06/22/17 23:02 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/21/17 15:48 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 01:54 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 01:54 / jpv
Barium	ND	mg/L		0.01		E200.7	06/21/17 03:49 / rlh
Beryllium	ND	mg/L		0.001		E200.7	06/21/17 03:49 / rlh
Boron	ND	mg/L		0.05		E200.7	06/21/17 03:49 / rlh
Cadmium	ND	mg/L		0.005		E200.7	06/21/17 03:49 / rlh
Chromium	ND	mg/L		0.01		E200.7	06/21/17 03:49 / rlh
Cobalt	ND	mg/L		0.02		E200.7	06/21/17 03:49 / rlh
Lead	ND	mg/L		0.01		E200.8	06/27/17 17:44 / jpv
Lithium	ND	mg/L		0.01		E200.7	06/21/17 03:49 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:26 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/21/17 03:49 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/23/17 01:54 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 17:44 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.11	pCi/L	U			E903.0	07/04/17 11:15 / eli-ca
Radium 226 precision (±)	0.13	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 228	0.33	pCi/L	U			RA-05	06/29/17 13:25 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 226 + Radium 228	0.4	pCi/L	U			A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-005
Client Sample ID: DUP-2

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/13/17
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	710	mg/L		1		E200.7	06/21/17 03:53 / rlh
Magnesium	184	mg/L		1		E200.7	06/21/17 03:53 / rlh
Potassium	50	mg/L		1		E200.7	06/21/17 03:53 / rlh
Sodium	1100	mg/L	D	4		E200.7	06/21/17 03:53 / rlh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	06/17/17 14:29 / pjw
Solids, Total Dissolved TDS @ 180 C	6430	mg/L	D	100		A2540 C	06/16/17 13:54 / rik
INORGANICS							
Chloride	1810	mg/L	D	6		E300.0	06/22/17 23:22 / mej
Sulfate	2530	mg/L	D	20		E300.0	06/22/17 23:22 / mej
Fluoride	0.7	mg/L		0.1		A4500-F C	06/21/17 15:55 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 01:58 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 01:58 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/21/17 03:53 / rlh
Beryllium	0.118	mg/L		0.001		E200.8	06/27/17 17:47 / jpv
Boron	2.93	mg/L		0.05		E200.7	06/21/17 03:53 / rlh
Cadmium	0.065	mg/L		0.005		E200.8	06/23/17 01:58 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 01:58 / jpv
Cobalt	0.56	mg/L		0.02		E200.8	06/23/17 01:58 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 17:47 / jpv
Lithium	0.70	mg/L	D	0.04		E200.7	06/21/17 03:53 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:28 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 01:58 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 01:58 / jpv
Thallium	0.010	mg/L		0.002		E200.8	06/27/17 17:47 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	7.0	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 precision (±)	1.4	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 228	25	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 228 precision (±)	4.8	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	06/29/17 13:25 / eli-ca
Radium 226 + Radium 228	32.1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	5.0	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-006
Client Sample ID: SFL MW-5

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 10:30
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	899	mg/L	D	2		E200.7	06/21/17 03:56 / rlh
Magnesium	183	mg/L		1		E200.7	06/21/17 03:56 / rlh
Potassium	54	mg/L		1		E200.7	06/21/17 03:56 / rlh
Sodium	1680	mg/L	D	8		E200.7	06/21/17 03:56 / rlh
PHYSICAL PROPERTIES							
pH	4.8	s.u.	H	0.1		A4500-H B	06/16/17 17:40 / pjw
Solids, Total Dissolved TDS @ 180 C	7600	mg/L	D	90		A2540 C	06/17/17 07:58 / rik
INORGANICS							
Chloride	3160	mg/L	D	10		E300.0	06/22/17 23:42 / mej
Sulfate	2220	mg/L	D	40		E300.0	06/22/17 23:42 / mej
Fluoride	0.2	mg/L		0.1		A4500-F C	06/21/17 16:02 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:02 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:02 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/21/17 03:56 / rlh
Beryllium	0.011	mg/L		0.001		E200.8	06/27/17 17:49 / jpv
Boron	4.18	mg/L	D	0.07		E200.7	06/21/17 03:56 / rlh
Cadmium	0.005	mg/L		0.005		E200.8	06/23/17 02:02 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:02 / jpv
Cobalt	0.05	mg/L		0.02		E200.8	06/23/17 02:02 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 17:49 / jpv
Lithium	0.92	mg/L	D	0.09		E200.7	06/21/17 03:56 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:30 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 02:02 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:02 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 17:49 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	4.3	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 precision (±)	0.88	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 11:15 / eli-ca
Radium 228	7.3	pCi/L				RA-05	06/29/17 13:26 / eli-ca
Radium 228 precision (±)	2.0	pCi/L				RA-05	06/29/17 13:26 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	06/29/17 13:26 / eli-ca
Radium 226 + Radium 228	11.6	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	2.2	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-007
Client Sample ID: SSP MW-2

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 10:34
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	872	mg/L		1		E200.7	06/21/17 04:00 / rlh
Magnesium	208	mg/L		1		E200.7	06/21/17 04:00 / rlh
Potassium	61	mg/L		1		E200.7	06/21/17 04:00 / rlh
Sodium	1160	mg/L	D	4		E200.7	06/21/17 04:00 / rlh
PHYSICAL PROPERTIES							
pH	4.6	s.u.	H	0.1		A4500-H B	06/16/17 17:42 / pjw
Solids, Total Dissolved TDS @ 180 C	6940	mg/L	D	90		A2540 C	06/17/17 07:58 / rik
INORGANICS							
Chloride	2640	mg/L	D	6		E300.0	06/23/17 00:01 / mej
Sulfate	2120	mg/L	D	20		E300.0	06/23/17 00:01 / mej
Fluoride	0.2	mg/L		0.1		A4500-F C	06/21/17 16:09 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:06 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:06 / jpv
Barium	0.03	mg/L		0.01		E200.7	06/21/17 04:00 / rlh
Beryllium	0.030	mg/L		0.001		E200.8	06/27/17 18:00 / jpv
Boron	0.46	mg/L		0.05		E200.7	06/21/17 04:00 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/23/17 02:06 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:06 / jpv
Cobalt	0.06	mg/L		0.02		E200.8	06/23/17 02:06 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:00 / jpv
Lithium	0.95	mg/L	D	0.04		E200.7	06/21/17 04:00 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:32 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 02:06 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:06 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:00 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.89	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.25	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.25	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	1.4	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 228 precision (±)	0.75	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 226 + Radium 228	2.3	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-008
Client Sample ID: SFL MW-2

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 11:30
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	829	mg/L	D	2		E200.7	06/21/17 04:03 / rlh
Magnesium	132	mg/L		1		E200.7	06/21/17 04:03 / rlh
Potassium	45	mg/L		1		E200.7	06/21/17 04:03 / rlh
Sodium	1560	mg/L	D	8		E200.7	06/21/17 04:03 / rlh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	06/16/17 17:45 / pjw
Solids, Total Dissolved TDS @ 180 C	6940	mg/L	D	90		A2540 C	06/17/17 07:58 / rik
INORGANICS							
Chloride	2910	mg/L	D	10		E300.0	06/23/17 00:21 / mej
Sulfate	1890	mg/L	D	40		E300.0	06/23/17 00:21 / mej
Fluoride	0.3	mg/L		0.1		A4500-F C	06/21/17 16:12 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:09 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:09 / jpv
Barium	0.03	mg/L		0.01		E200.7	06/21/17 04:03 / rlh
Beryllium	0.002	mg/L		0.001		E200.8	06/27/17 18:02 / jpv
Boron	0.51	mg/L	D	0.07		E200.7	06/21/17 04:03 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/23/17 02:09 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:09 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/23/17 02:09 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:02 / jpv
Lithium	0.59	mg/L	D	0.09		E200.7	06/21/17 04:03 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:34 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 02:09 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:09 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:02 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	3.2	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.68	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	5.3	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 226 + Radium 228	8.4	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.3	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-009
Client Sample ID: SSP MW-4

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 11:49
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	413	mg/L		1		E200.7	06/21/17 04:07 / rlh
Magnesium	88	mg/L		1		E200.7	06/21/17 04:07 / rlh
Potassium	54	mg/L		1		E200.7	06/21/17 04:07 / rlh
Sodium	733	mg/L	D	4		E200.7	06/21/17 04:07 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	06/16/17 17:48 / pjw
Solids, Total Dissolved TDS @ 180 C	3660	mg/L	D	40		A2540 C	06/17/17 07:58 / rik
INORGANICS							
Chloride	1190	mg/L	D	6		E300.0	06/23/17 00:40 / mej
Sulfate	1200	mg/L	D	20		E300.0	06/23/17 00:40 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/21/17 16:15 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:13 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:13 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/21/17 04:07 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/27/17 18:05 / jpv
Boron	1.31	mg/L		0.05		E200.7	06/21/17 04:07 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/23/17 02:13 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:13 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/23/17 02:13 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:05 / jpv
Lithium	0.95	mg/L	D	0.04		E200.7	06/21/17 04:07 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:35 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 02:13 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:13 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:05 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.30	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	2.0	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 226 + Radium 228	3.2	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-010
Client Sample ID: EQBK-BJG-061417

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 12:55
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	06/21/17 04:10 / rlh
Magnesium	ND	mg/L		1		E200.7	06/21/17 04:10 / rlh
Potassium	ND	mg/L		1		E200.7	06/21/17 04:10 / rlh
Sodium	ND	mg/L		1		E200.7	06/21/17 04:10 / rlh
PHYSICAL PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	06/16/17 17:50 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/17/17 08:02 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	06/23/17 01:00 / mej
Sulfate	ND	mg/L		1		E300.0	06/23/17 01:00 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/21/17 16:26 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:27 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:27 / jpv
Barium	ND	mg/L		0.01		E200.7	06/21/17 04:10 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/27/17 18:08 / jpv
Boron	ND	mg/L		0.05		E200.7	06/21/17 04:10 / rlh
Cadmium	ND	mg/L		0.005		E200.7	06/21/17 04:10 / rlh
Chromium	ND	mg/L		0.01		E200.7	06/21/17 04:10 / rlh
Cobalt	ND	mg/L		0.02		E200.7	06/21/17 04:10 / rlh
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:08 / jpv
Lithium	ND	mg/L		0.01		E200.7	06/21/17 04:10 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:41 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/21/17 04:10 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:27 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:08 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.08	pCi/L	U			E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.13	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.24	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	0.28	pCi/L	U			RA-05	06/29/17 15:19 / eli-ca
Radium 228 precision (±)	0.99	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 226 + Radium 228	0.4	pCi/L	U			A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-011
Client Sample ID: EQBK/SCM/061417

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 12:55
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	06/21/17 04:14 / rlh
Magnesium	ND	mg/L		1		E200.7	06/21/17 04:14 / rlh
Potassium	ND	mg/L		1		E200.7	06/21/17 04:14 / rlh
Sodium	ND	mg/L		1		E200.7	06/21/17 04:14 / rlh
PHYSICAL PROPERTIES							
pH	5.8	s.u.	H	0.1		A4500-H B	06/16/17 17:53 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/17/17 08:02 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	06/23/17 01:19 / mej
Sulfate	ND	mg/L		1		E300.0	06/23/17 01:19 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/21/17 16:48 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:31 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:31 / jpv
Barium	ND	mg/L		0.01		E200.7	06/21/17 04:14 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/27/17 18:10 / jpv
Boron	ND	mg/L		0.05		E200.7	06/21/17 04:14 / rlh
Cadmium	ND	mg/L		0.005		E200.7	06/21/17 04:14 / rlh
Chromium	ND	mg/L		0.01		E200.7	06/21/17 04:14 / rlh
Cobalt	ND	mg/L		0.02		E200.7	06/21/17 04:14 / rlh
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:10 / jpv
Lithium	ND	mg/L		0.01		E200.7	06/21/17 04:14 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:43 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/21/17 04:14 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:31 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:10 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	0.59	pCi/L	U			RA-05	06/29/17 15:19 / eli-ca
Radium 228 precision (±)	0.94	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-013
Client Sample ID: MNW-15

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 14:20
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	256	mg/L		1		E200.7	06/21/17 04:28 / rlh
Magnesium	51	mg/L		1		E200.7	06/21/17 04:28 / rlh
Potassium	24	mg/L		1		E200.7	06/21/17 04:28 / rlh
Sodium	420	mg/L	D	2		E200.7	06/21/17 04:28 / rlh
PHYSICAL PROPERTIES							
pH	3.7	s.u.	H	0.1		A4500-H B	06/16/17 17:58 / pjw
Solids, Total Dissolved TDS @ 180 C	2620	mg/L	D	40		A2540 C	06/17/17 08:02 / rik
INORGANICS							
Chloride	688	mg/L	D	3		E300.0	06/23/17 03:16 / mej
Sulfate	1190	mg/L	D	9		E300.0	06/23/17 03:16 / mej
Fluoride	0.5	mg/L		0.1		A4500-F C	06/21/17 17:03 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:38 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:38 / jpv
Barium	0.03	mg/L		0.01		E200.7	06/21/17 04:28 / rlh
Beryllium	0.072	mg/L		0.001		E200.7	06/21/17 04:28 / rlh
Boron	8.62	mg/L		0.05		E200.7	06/21/17 04:28 / rlh
Cadmium	0.116	mg/L		0.005		E200.7	06/21/17 04:28 / rlh
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:38 / jpv
Cobalt	0.26	mg/L		0.02		E200.8	06/23/17 02:38 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:15 / jpv
Lithium	0.11	mg/L	D	0.02		E200.7	06/21/17 04:28 / rlh
Mercury	0.012	mg/L		0.001		E245.1	06/27/17 10:41 / jh
Molybdenum	ND	mg/L		0.05		E200.7	06/21/17 04:28 / rlh
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:38 / jpv
Thallium	0.002	mg/L		0.002		E200.8	06/27/17 18:15 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.33	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	0.91	pCi/L	U			RA-05	06/29/17 15:19 / eli-ca
Radium 228 precision (±)	0.90	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 226 + Radium 228	1.2	pCi/L	U			A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-015
Client Sample ID: SFL MW-7

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 15:30
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	662	mg/L		1		E200.7	06/21/17 04:35 / rlh
Magnesium	106	mg/L		1		E200.7	06/21/17 04:35 / rlh
Potassium	45	mg/L		1		E200.7	06/21/17 04:35 / rlh
Sodium	1220	mg/L	D	4		E200.7	06/21/17 04:35 / rlh
PHYSICAL PROPERTIES							
pH	6.8	s.u.	H	0.1		A4500-H B	06/16/17 18:14 / pjw
Solids, Total Dissolved TDS @ 180 C	6460	mg/L	D	100		A2540 C	06/17/17 08:03 / rik
INORGANICS							
Chloride	2800	mg/L	D	6		E300.0	06/23/17 03:55 / mej
Sulfate	779	mg/L	D	20		E300.0	06/23/17 03:55 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/21/17 17:09 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:45 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:45 / jpv
Barium	0.03	mg/L		0.01		E200.7	06/21/17 04:35 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/27/17 18:20 / jpv
Boron	0.76	mg/L		0.05		E200.7	06/21/17 04:35 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/23/17 02:45 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:45 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/23/17 02:45 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:20 / jpv
Lithium	0.50	mg/L	D	0.04		E200.7	06/21/17 04:35 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:51 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 02:45 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:45 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:20 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.87	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.22	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	1.4	pCi/L	U			RA-05	06/29/17 15:19 / eli-ca
Radium 228 precision (±)	0.94	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	06/29/17 15:19 / eli-ca
Radium 226 + Radium 228	2.3	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-017
Client Sample ID: SFL MW-3

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 16:50
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	672	mg/L		1		E200.7	06/21/17 04:42 / rlh
Magnesium	128	mg/L		1		E200.7	06/21/17 04:42 / rlh
Potassium	53	mg/L		1		E200.7	06/21/17 04:42 / rlh
Sodium	911	mg/L	D	4		E200.7	06/21/17 04:42 / rlh
PHYSICAL PROPERTIES							
pH	3.9	s.u.	H	0.1		A4500-H B	06/16/17 18:19 / pjw
Solids, Total Dissolved TDS @ 180 C	4710	mg/L	D	90		A2540 C	06/17/17 08:03 / rik
INORGANICS							
Chloride	1440	mg/L	D	6		E300.0	06/23/17 04:34 / mej
Sulfate	2380	mg/L	D	20		E300.0	06/23/17 04:34 / mej
Fluoride	0.6	mg/L		0.1		A4500-F C	06/21/17 17:22 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:53 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:53 / jpv
Barium	0.03	mg/L		0.01		E200.7	06/21/17 04:42 / rlh
Beryllium	0.037	mg/L		0.001		E200.8	06/27/17 18:33 / jpv
Boron	2.93	mg/L		0.05		E200.7	06/21/17 04:42 / rlh
Cadmium	0.007	mg/L		0.005		E200.8	06/23/17 02:53 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:53 / jpv
Cobalt	0.07	mg/L		0.02		E200.8	06/23/17 02:53 / jpv
Lead	0.03	mg/L		0.01		E200.8	06/27/17 18:33 / jpv
Lithium	0.40	mg/L	D	0.04		E200.7	06/21/17 04:42 / rlh
Mercury	0.001	mg/L		0.001		E245.1	06/23/17 12:18 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 02:53 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:53 / jpv
Thallium	0.006	mg/L		0.002		E200.8	06/27/17 18:33 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.9	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 precision (±)	0.44	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	07/04/17 09:41 / eli-ca
Radium 228	3.1	pCi/L				RA-05	06/29/17 15:47 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	06/29/17 15:47 / eli-ca
Radium 228 MDC	1.3	pCi/L				RA-05	06/29/17 15:47 / eli-ca
Radium 226 + Radium 228	5.0	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-018
Client Sample ID: SFL MW-4

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17 17:45
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	780	mg/L		1		E200.7	06/21/17 04:46 / rlh
Magnesium	123	mg/L		1		E200.7	06/21/17 04:46 / rlh
Potassium	52	mg/L		1		E200.7	06/21/17 04:46 / rlh
Sodium	1040	mg/L	D	4		E200.7	06/21/17 04:46 / rlh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	06/16/17 18:22 / pjw
Solids, Total Dissolved TDS @ 180 C	5700	mg/L	D	100		A2540 C	06/17/17 08:03 / rik
INORGANICS							
Chloride	1740	mg/L	D	6		E300.0	06/23/17 04:54 / mej
Sulfate	2280	mg/L	D	20		E300.0	06/23/17 04:54 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/21/17 17:25 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 02:56 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 02:56 / jpv
Barium	0.02	mg/L		0.01		E200.7	06/21/17 04:46 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/27/17 18:36 / jpv
Boron	0.59	mg/L		0.05		E200.7	06/21/17 04:46 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/23/17 02:56 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 02:56 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/23/17 02:56 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:36 / jpv
Lithium	0.48	mg/L	D	0.04		E200.7	06/21/17 04:46 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:56 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 02:56 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 02:56 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:36 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	07/04/17 12:02 / eli-ca
Radium 226 precision (±)	0.31	pCi/L				E903.0	07/04/17 12:02 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	07/04/17 12:02 / eli-ca
Radium 228	1.5	pCi/L				RA-05	06/29/17 15:47 / eli-ca
Radium 228 precision (±)	0.87	pCi/L				RA-05	06/29/17 15:47 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	06/29/17 15:47 / eli-ca
Radium 226 + Radium 228	2.6	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17061657-019
Client Sample ID: DUP-3

Revised Date: 12/21/17
Report Date: 07/06/17
Collection Date: 06/14/17
DateReceived: 06/16/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	671	mg/L		1		E200.7	06/21/17 04:49 / rlh
Magnesium	108	mg/L		1		E200.7	06/21/17 04:49 / rlh
Potassium	45	mg/L		1		E200.7	06/21/17 04:49 / rlh
Sodium	1250	mg/L	D	4		E200.7	06/21/17 04:49 / rlh
PHYSICAL PROPERTIES							
pH	6.8	s.u.	H	0.1		A4500-H B	06/16/17 18:24 / pjw
Solids, Total Dissolved TDS @ 180 C	6530	mg/L	D	100		A2540 C	06/17/17 08:04 / rik
INORGANICS							
Chloride	2820	mg/L	D	6		E300.0	06/23/17 05:13 / mej
Sulfate	782	mg/L	D	20		E300.0	06/23/17 05:13 / mej
Fluoride	ND	mg/L		0.1		A4500-F C	06/21/17 17:28 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	06/23/17 03:00 / jpv
Arsenic	ND	mg/L		0.01		E200.8	06/23/17 03:00 / jpv
Barium	0.03	mg/L		0.01		E200.7	06/21/17 04:49 / rlh
Beryllium	ND	mg/L		0.001		E200.8	06/27/17 18:39 / jpv
Boron	0.76	mg/L		0.05		E200.7	06/21/17 04:49 / rlh
Cadmium	ND	mg/L		0.005		E200.8	06/23/17 03:00 / jpv
Chromium	ND	mg/L		0.01		E200.8	06/23/17 03:00 / jpv
Cobalt	ND	mg/L		0.02		E200.8	06/23/17 03:00 / jpv
Lead	ND	mg/L		0.01		E200.8	06/27/17 18:39 / jpv
Lithium	0.52	mg/L	D	0.04		E200.7	06/21/17 04:49 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/21/17 12:58 / jh
Molybdenum	ND	mg/L		0.05		E200.8	06/23/17 03:00 / jpv
Selenium	ND	mg/L		0.01		E200.8	06/23/17 03:00 / jpv
Thallium	ND	mg/L		0.002		E200.8	06/27/17 18:39 / jpv
RADIONUCLIDES - TOTAL							
Radium 226	0.76	pCi/L				E903.0	07/04/17 12:02 / eli-ca
Radium 226 precision (±)	0.22	pCi/L				E903.0	07/04/17 12:02 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	07/04/17 12:02 / eli-ca
Radium 228	1.9	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 228 precision (±)	0.82	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	06/29/17 14:12 / eli-ca
Radium 226 + Radium 228	2.7	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	07/05/17 09:40 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 07/05/17
Work Order: B17061657

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8539
Lab ID: LCS-RA226-8539	Laboratory Control Sample				Run: G5000W_170622A				07/04/17 09:41
Radium 226	9.0	pCi/L		88	80	120			
Lab ID: MB-RA226-8539	Method Blank				Run: G5000W_170622A				07/04/17 09:41
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17061657-007CMS	Sample Matrix Spike				Run: G5000W_170622A				07/04/17 09:41
Radium 226	18	pCi/L		85	70	130			
Lab ID: B17061657-007CMSD	Sample Matrix Spike Duplicate				Run: G5000W_170622A				07/04/17 09:41
Radium 226	18	pCi/L		85	70	130	1.4	20	
Method: E903.0									Batch: RA226-8538
Lab ID: LCS-RA226-8538	Laboratory Control Sample				Run: G542M_170622A				07/04/17 09:35
Radium 226	11	pCi/L		107	80	120			
Lab ID: MB-RA226-8538	Method Blank				Run: G542M_170622A				07/04/17 09:35
Radium 226	0.2	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C17060553-002CMS	Sample Matrix Spike				Run: G542M_170622A				07/04/17 09:35
Radium 226	17	pCi/L		77	70	130			
Lab ID: C17060553-002CMSD	Sample Matrix Spike Duplicate				Run: G542M_170622A				07/04/17 09:35
Radium 226	18	pCi/L		83	70	130	7.0	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 07/05/17
Work Order: B17061657

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5525
Lab ID: LCS-228-RA226-8538	Laboratory Control Sample				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	8.6	pCi/L		86	80	120			
Lab ID: MB-RA226-8538	Method Blank				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	0.6	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17060553-010CMS	Sample Matrix Spike				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	26	pCi/L		123	70	130			
Lab ID: C17060553-010CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170622B				06/29/17 11:52
Radium 228	24	pCi/L		111	70	130	9.0	20	
Method: RA-05									Batch: RA228-5526
Lab ID: LCS-228-RA226-8539	Laboratory Control Sample				Run: TENNELEC-3_170622C				06/29/17 14:12
Radium 228	9.3	pCi/L		96	80	120			
Lab ID: MB-RA226-8539	Method Blank				Run: TENNELEC-3_170622C				06/29/17 14:12
Radium 228	0.4	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: B17061657-019CMS	Sample Matrix Spike				Run: TENNELEC-3_170622C				06/29/17 14:12
Radium 228	20	pCi/L		97	70	130			
Lab ID: B17061657-019CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170622C				06/29/17 14:12
Radium 228	18	pCi/L		88	70	130	10	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/05/17
Project: CCRR
Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: 110643
Lab ID: **LCS-110643**	Laboratory Control Sample					Run: BAL #SD-15_170616D				06/16/17 13:52
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	10	100	90	110			
Lab ID: **B17061657-005A DUP**	Sample Duplicate					Run: BAL #SD-15_170616D				06/16/17 13:55
Solids, Total Dissolved TDS @ 180 C		6420	mg/L	94				0.2	5	
Lab ID: **MB-110643**	Method Blank					Run: BAL #SD-15_170616D				06/19/17 09:39
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Method: **A2540 C**										Batch: 110647
Lab ID: **MB-110647**	Method Blank					Run: BAL #SD-15_170617B				06/17/17 07:55
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: **LCS-110647**	Laboratory Control Sample					Run: BAL #SD-15_170617B				06/17/17 07:55
Solids, Total Dissolved TDS @ 180 C		962	mg/L	10	97	90	110			
Lab ID: **B17061694-001A DUP**	Sample Duplicate					Run: BAL #SD-15_170617B				06/17/17 07:56
Solids, Total Dissolved TDS @ 180 C		7590	mg/L	93				0.7	5	
Method: **A2540 C**										Batch: 110648
Lab ID: **MB-110648**	Method Blank					Run: BAL #SD-15_170617C				06/17/17 08:01
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: **LCS-110648**	Laboratory Control Sample					Run: BAL #SD-15_170617C				06/17/17 08:01
Solids, Total Dissolved TDS @ 180 C		957	mg/L	10	96	90	110			
Lab ID: **B17061657-010A DUP**	Sample Duplicate					Run: BAL #SD-15_170617C				06/17/17 08:02
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10					5	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/05/17

Project: CCRR **Work Order:** B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170621A	
Lab ID: **ICV**	Initial Calibration Verification Standard								06/21/17 15:18	
Fluoride		0.900	mg/L	0.10	90	90	110			
Method: **A4500-F C**									Batch: R281950	
Lab ID: **MBLK**	Method Blank					Run: MAN-TECH_170621A			06/21/17 15:12	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**	Laboratory Fortified Blank					Run: MAN-TECH_170621A			06/21/17 15:15	
Fluoride		0.920	mg/L	0.10	92	90	110			
Lab ID: **B17061657-001AMS**	Sample Matrix Spike					Run: MAN-TECH_170621A			06/21/17 15:23	
Fluoride		1.57	mg/L	0.10	93	80	120			
Lab ID: **B17061657-001AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_170621A			06/21/17 15:25	
Fluoride		1.62	mg/L	0.10	98	80	120	3.1	10	
Lab ID: **B17061657-011AMS**	Sample Matrix Spike					Run: MAN-TECH_170621A			06/21/17 16:50	
Fluoride		0.910	mg/L	0.10	91	80	120			
Lab ID: **B17061657-011AMSD**	Sample Matrix Spike Duplicate					Run: MAN-TECH_170621A			06/21/17 16:53	
Fluoride		0.920	mg/L	0.10	92	80	120	1.1	10	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/05/17
Project: CCRR
Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170616A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								06/16/17 08:45	
pH		7.99	s.u.	0.10	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								06/16/17 13:30	
pH		7.00	s.u.	0.10	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								06/16/17 16:13	
pH		7.01	s.u.	0.10	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								06/16/17 18:01	
pH		7.01	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R281591	
Lab ID: **B17061657-005ADUP**	Sample Duplicate					Run: PHSC _101-B_170616A			06/16/17 14:42	
pH		4.50	s.u.	0.10				3.1	3	R
Lab ID: **B17061657-014ADUP**	Sample Duplicate					Run: PHSC _101-B_170616A			06/16/17 18:11	
pH		7.01	s.u.	0.10				0.3	3	
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170617A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								06/17/17 13:16	
pH		7.99	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R281659	
Lab ID: **B17061657-005ADUP**	Sample Duplicate					Run: PHSC _101-B_170617A			06/17/17 14:31	
pH		4.53	s.u.	0.10				0.2	3	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/05/17

Project: CCRR **Work Order:** B17061657

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**									Analytical Run: IC METROHM 2_170622A	
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							06/22/17 15:54	
Chloride			2.21	mg/L	1.0	98	90	110			
Sulfate			8.97	mg/L	1.0	100	90	110			
Method:	**E300.0**									Batch: R281994	
Lab ID:	**ICB**	2	Method Blank				Run: IC METROHM 2_170622A			06/22/17 16:13	
Chloride			ND	mg/L	0.002						
Sulfate			ND	mg/L	0.03						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_170622A			06/22/17 16:33	
Chloride			10.3	mg/L	1.0	103	90	110			
Sulfate			30.7	mg/L	1.0	102	90	110			
Lab ID:	**B17061657-002AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170622A			06/22/17 22:04	
Chloride			457	mg/L	1.2	104	90	110			
Sulfate			1140	mg/L	3.7	106	90	110			
Lab ID:	**B17061657-002AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170622A			06/22/17 22:23	
Chloride			455	mg/L	1.2	103	90	110	0.4	20	
Sulfate			1140	mg/L	3.7	106	90	110	0.4	20	
Lab ID:	**B17061657-012AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170622A			06/23/17 02:37	
Chloride			3380	mg/L	6.1	96	90	110			E
Sulfate			4400	mg/L	18	108	90	110			
Lab ID:	**B17061657-012AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170622A			06/23/17 02:57	
Chloride			3410	mg/L	6.1	99	90	110	0.8	20	E
Sulfate			4440	mg/L	18	109	90	110	0.8	20	
Lab ID:	**B17061661-002AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170622A			06/23/17 07:10	
Chloride			1200	mg/L	6.1	110	90	110			
Sulfate			7400	mg/L	18	105	90	110			
Lab ID:	**B17061661-002AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170622A			06/23/17 07:30	
Chloride			1190	mg/L	6.1	109	90	110	1.2	20	
Sulfate			7340	mg/L	18	103	90	110	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

E - Estimated value. Result exceeds the instrument upper quantitation limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170620A	
Lab ID: **ICV**	12	Continuing Calibration Verification Standard							06/20/17 11:43	
Barium		2.42	mg/L	0.10	97	95	105			
Beryllium		1.26	mg/L	0.010	101	95	105			
Boron		2.53	mg/L	0.10	101	95	105			
Cadmium		2.58	mg/L	0.010	103	95	105			
Calcium		25.4	mg/L	1.0	102	95	105			
Chromium		2.46	mg/L	0.050	99	95	105			
Cobalt		2.57	mg/L	0.020	103	95	105			
Lithium		1.27	mg/L	0.10	101	95	105			
Magnesium		25.1	mg/L	1.0	100	95	105			
Molybdenum		2.59	mg/L	0.10	104	95	105			
Potassium		25.3	mg/L	1.0	101	95	105			
Sodium		25.3	mg/L	1.0	101	95	105			
Method: **E200.7**									Batch: 110656	
Lab ID: **MB-110656**	12	Method Blank				Run: ICP203-B_170620A			06/21/17 03:10	
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		0.006	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: **LCS-110656**	12	Laboratory Control Sample				Run: ICP203-B_170620A			06/21/17 03:14	
Barium		0.511	mg/L	0.10	102	85	115			
Beryllium		0.267	mg/L	0.010	107	85	115			
Boron		0.488	mg/L	0.10	98	85	115			
Cadmium		0.254	mg/L	0.010	102	85	115			
Calcium		25.7	mg/L	1.0	103	85	115			
Chromium		0.507	mg/L	0.050	101	85	115			
Cobalt		0.501	mg/L	0.050	100	85	115			
Lithium		0.515	mg/L	0.10	102	85	115			
Magnesium		26.0	mg/L	1.0	104	85	115			
Molybdenum		0.506	mg/L	0.10	101	85	115			
Potassium		25.6	mg/L	1.0	102	85	115			
Sodium		25.4	mg/L	1.0	101	85	115			
Lab ID: **B17061657-001BMS3**	12	Sample Matrix Spike				Run: ICP203-B_170620A			06/21/17 03:28	
Barium		0.517	mg/L	0.050	101	70	130			
Beryllium		0.270	mg/L	0.0010	108	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: 110656	
Lab ID: B17061657-001BMS3	12	Sample Matrix Spike				Run: ICP203-B_170620A			06/21/17 03:28	
Boron		5.35	mg/L	0.050		70	130			A
Cadmium		0.250	mg/L	0.0020	100	70	130			
Calcium		101	mg/L	1.0	122	70	130			
Chromium		0.499	mg/L	0.0050	99	70	130			
Cobalt		0.510	mg/L	0.010	100	70	130			
Lithium		0.536	mg/L	0.10	99	70	130			
Magnesium		39.5	mg/L	1.0	108	70	130			
Molybdenum		0.517	mg/L	0.014	99	70	130			
Potassium		36.0	mg/L	1.0	101	70	130			
Sodium		337	mg/L	1.0		70	130			A
Lab ID: B17061657-001BMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170620A			06/21/17 03:32	
Barium		0.497	mg/L	0.050	97	70	130	4.0	20	
Beryllium		0.252	mg/L	0.0010	101	70	130	6.8	20	
Boron		5.10	mg/L	0.050		70	130	4.9	20	A
Cadmium		0.241	mg/L	0.0020	97	70	130	3.7	20	
Calcium		94.9	mg/L	1.0	96	70	130	6.7	20	
Chromium		0.486	mg/L	0.0050	96	70	130	2.7	20	
Cobalt		0.493	mg/L	0.010	96	70	130	3.5	20	
Lithium		0.518	mg/L	0.10	95	70	130	3.5	20	
Magnesium		36.7	mg/L	1.0	97	70	130	7.3	20	
Molybdenum		0.501	mg/L	0.014	95	70	130	3.1	20	
Potassium		34.8	mg/L	1.0	97	70	130	3.3	20	
Sodium		322	mg/L	1.0		70	130	4.6	20	A
Lab ID: B17061699-001BMS3	12	Sample Matrix Spike				Run: ICP203-B_170620A			06/21/17 05:10	
Barium		0.584	mg/L	0.050	98	70	130			
Beryllium		0.260	mg/L	0.0010	104	70	130			
Boron		0.809	mg/L	0.050	101	70	130			
Cadmium		0.248	mg/L	0.0020	99	70	130			
Calcium		71.5	mg/L	1.0	104	70	130			
Chromium		0.497	mg/L	0.0050	98	70	130			
Cobalt		0.482	mg/L	0.010	96	70	130			
Lithium		0.539	mg/L	0.10	97	70	130			
Magnesium		46.8	mg/L	1.0	104	70	130			
Molybdenum		8.62	mg/L	0.014		70	130			A
Potassium		56.4	mg/L	1.0	101	70	130			
Sodium		183	mg/L	1.0		70	130			A
Lab ID: B17061699-001BMSD	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170620A			06/21/17 05:14	
Barium		0.577	mg/L	0.050	97	70	130	1.2	20	
Beryllium		0.260	mg/L	0.0010	104	70	130	0.2	20	
Boron		0.796	mg/L	0.050	99	70	130	1.6	20	
Cadmium		0.253	mg/L	0.0020	101	70	130	2.2	20	
Calcium		72.5	mg/L	1.0	108	70	130	1.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Batch: 110656	
Lab ID: **B17061699-001BMSD**	12	Sample Matrix Spike Duplicate				Run: ICP203-B_170620A			06/21/17 05:14	
Chromium		0.509	mg/L	0.0050	101	70	130	2.3	20	
Cobalt		0.494	mg/L	0.010	99	70	130	2.3	20	
Lithium		0.533	mg/L	0.10	96	70	130	1.1	20	
Magnesium		47.1	mg/L	1.0	105	70	130	0.5	20	
Molybdenum		8.96	mg/L	0.014		70	130	3.8	20	A
Potassium		55.8	mg/L	1.0	98	70	130	1.0	20	
Sodium		182	mg/L	1.0		70	130	0.8	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS202-B_170627A	
Lab ID: QCS	3	Initial Calibration Verification Standard							06/27/17 13:19	
Beryllium		0.0262	mg/L	0.0010	105	90	110			
Lead		0.0481	mg/L	0.010	96	90	110			
Thallium		0.0469	mg/L	0.10	94	90	110			
Method: E200.8									Batch: 110656	
Lab ID: MB-110656	3	Method Blank				Run: ICPMS202-B_170627A			06/27/17 17:08	
Beryllium		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00005						
Thallium		ND	mg/L	0.0001						
Lab ID: LCS-110656	3	Laboratory Control Sample				Run: ICPMS202-B_170627A			06/27/17 17:27	
Beryllium		0.254	mg/L	0.0010	102	85	115			
Lead		0.520	mg/L	0.0010	104	85	115			
Thallium		0.496	mg/L	0.00050	99	85	115			
Lab ID: B17061657-001BMS3	3	Sample Matrix Spike				Run: ICPMS202-B_170627A			06/27/17 17:29	
Beryllium		0.221	mg/L	0.0010	88	70	130			
Lead		0.547	mg/L	0.0010	109	70	130			
Thallium		0.497	mg/L	0.00050	99	70	130			
Lab ID: B17061657-001BMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170627A			06/27/17 17:32	
Beryllium		0.221	mg/L	0.0010	88	70	130	0.3	20	
Lead		0.552	mg/L	0.0010	110	70	130	1.0	20	
Thallium		0.503	mg/L	0.00050	101	70	130	1.3	20	
Lab ID: B17061699-001BMS3	3	Sample Matrix Spike				Run: ICPMS202-B_170627A			06/27/17 18:44	
Beryllium		0.258	mg/L	0.0010	103	70	130			
Lead		0.505	mg/L	0.0010	101	70	130			
Thallium		0.494	mg/L	0.00071	99	70	130			
Lab ID: B17061699-001BMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170627A			06/27/17 18:46	
Beryllium		0.251	mg/L	0.0010	101	70	130	2.5	20	
Lead		0.505	mg/L	0.0010	101	70	130	0.1	20	
Thallium		0.497	mg/L	0.00071	99	70	130	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170621A	
Lab ID: QCS	8	Initial Calibration Verification Standard							06/22/17 16:13	
Antimony		0.0470	mg/L	0.050	94	90	110			
Arsenic		0.0483	mg/L	0.0050	97	90	110			
Cadmium		0.0254	mg/L	0.0010	102	90	110			
Chromium		0.0492	mg/L	0.010	98	90	110			
Cobalt		0.0499	mg/L	0.010	100	90	110			
Lead		0.0478	mg/L	0.010	96	90	110			
Molybdenum		0.0449	mg/L	0.0050	90	90	110			
Selenium		0.0493	mg/L	0.0050	99	90	110			
Method: E200.8									Batch: 110656	
Lab ID: MB-110656	8	Method Blank				Run: ICPMS206-B_170621A			06/23/17 01:11	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Lab ID: LCS-110656	8	Laboratory Control Sample				Run: ICPMS206-B_170621A			06/23/17 01:18	
Antimony		0.477	mg/L	0.0010	95	85	115			
Arsenic		0.461	mg/L	0.0010	92	85	115			
Cadmium		0.230	mg/L	0.0010	92	85	115			
Chromium		0.457	mg/L	0.0050	91	85	115			
Cobalt		0.545	mg/L	0.0050	109	85	115			
Lead		0.473	mg/L	0.0010	95	85	115			
Molybdenum		0.454	mg/L	0.0010	91	85	115			
Selenium		0.457	mg/L	0.0010	91	85	115			
Lab ID: B17061657-001BMS3	8	Sample Matrix Spike				Run: ICPMS206-B_170621A			06/23/17 01:22	
Antimony		0.450	mg/L	0.0010	90	70	130			
Arsenic		0.460	mg/L	0.0010	90	70	130			
Cadmium		0.223	mg/L	0.0010	89	70	130			
Chromium		0.451	mg/L	0.0050	90	70	130			
Cobalt		0.550	mg/L	0.0050	108	70	130			
Lead		0.446	mg/L	0.0010	89	70	130			
Molybdenum		0.464	mg/L	0.0010	90	70	130			
Selenium		0.458	mg/L	0.0010	91	70	130			
Lab ID: B17061657-001BMSD	8	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170621A			06/23/17 01:25	
Antimony		0.462	mg/L	0.0010	92	70	130	2.6	20	
Arsenic		0.456	mg/L	0.0010	89	70	130	0.8	20	
Cadmium		0.220	mg/L	0.0010	88	70	130	1.2	20	
Chromium		0.451	mg/L	0.0050	90	70	130	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 110656
Lab ID: B17061657-001BMSD	8	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170621A				06/23/17 01:25
Cobalt		0.548	mg/L	0.0050	107	70	130	0.4	20	
Lead		0.463	mg/L	0.0010	92	70	130	3.7	20	
Molybdenum		0.472	mg/L	0.0010	91	70	130	1.7	20	
Selenium		0.458	mg/L	0.0010	91	70	130	0.0	20	
Lab ID: B17061699-001BMS3	8	Sample Matrix Spike				Run: ICPMS206-B_170621A				06/23/17 03:18
Antimony		0.468	mg/L	0.0010	94	70	130			
Arsenic		0.460	mg/L	0.0010	90	70	130			
Cadmium		0.225	mg/L	0.0010	89	70	130			
Chromium		0.465	mg/L	0.0050	92	70	130			
Cobalt		0.570	mg/L	0.0050	114	70	130			
Lead		0.467	mg/L	0.0010	93	70	130			
Molybdenum		9.88	mg/L	0.0010		70	130			A
Selenium		0.469	mg/L	0.0010	92	70	130			
Lab ID: B17061699-001BMSD	8	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170621A				06/23/17 03:22
Antimony		0.460	mg/L	0.0010	92	70	130	1.8	20	
Arsenic		0.456	mg/L	0.0010	89	70	130	0.9	20	
Cadmium		0.226	mg/L	0.0010	89	70	130	0.5	20	
Chromium		0.470	mg/L	0.0050	93	70	130	1.1	20	
Cobalt		0.551	mg/L	0.0050	110	70	130	3.5	20	
Lead		0.451	mg/L	0.0010	90	70	130	3.4	20	
Molybdenum		9.69	mg/L	0.0010		70	130	1.9	20	A
Selenium		0.466	mg/L	0.0010	91	70	130	0.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170621A	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/21/17 09:52	
Mercury		0.00200	mg/L	0.00010	100	90	110			
Method: **E245.1**									Batch: 110731	
Lab ID: **MB-110731**		Method Blank				Run: HGCV202-B_170621A			06/21/17 11:20	
Mercury		0.00002	mg/L	6E-06						
Lab ID: **LCS-110731**		Laboratory Control Sample				Run: HGCV202-B_170621A			06/21/17 11:22	
Mercury		0.00207	mg/L	0.00010	102	85	115			
Lab ID: **B17061657-002BMS**		Sample Matrix Spike				Run: HGCV202-B_170621A			06/21/17 12:13	
Mercury		0.00158	mg/L	0.00010	77	70	130			
Lab ID: **B17061657-002BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170621A			06/21/17 12:15	
Mercury		0.00157	mg/L	0.00010	76	70	130	1.0	30	
Method: **E245.1**									Batch: 110732	
Lab ID: **MB-110732**		Method Blank				Run: HGCV202-B_170621A			06/21/17 12:17	
Mercury		9E-06	mg/L	6E-06						
Lab ID: **LCS-110732**		Laboratory Control Sample				Run: HGCV202-B_170621A			06/21/17 12:18	
Mercury		0.00209	mg/L	0.00010	104	85	115			
Lab ID: **B17061661-003BMS**		Sample Matrix Spike				Run: HGCV202-B_170621A			06/21/17 13:10	
Mercury		0.00209	mg/L	0.00010	103	70	130			
Lab ID: **B17061661-003BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170621A			06/21/17 13:12	
Mercury		0.00209	mg/L	0.00010	104	70	130	0.1	30	
Lab ID: **B17061657-003BMS**		Sample Matrix Spike				Run: HGCV202-B_170621A			06/21/17 15:11	
Mercury		0.00216	mg/L	0.00050	97	70	130			
Lab ID: **B17061657-003BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170621A			06/21/17 15:13	
Mercury		0.00211	mg/L	0.00050	94	70	130	2.4	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 12/21/17

Client: Texas Municipal Power Agency

Report Date: 07/06/17

Project: CCRR

Work Order: B17061657

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170623B	
Lab ID: **ICV**	Initial Calibration Verification Standard								06/23/17 12:03	
Mercury		0.00197	mg/L	0.00010	99	90	110			
Method: **E245.1**									Batch: 110835	
Lab ID: **MB-110835**	Method Blank					Run: HGCV202-B_170623B			06/23/17 12:08	
Mercury		0.00001	mg/L	6E-06						
Lab ID: **LCS-110835**	Laboratory Control Sample					Run: HGCV202-B_170623B			06/23/17 12:10	
Mercury		0.00198	mg/L	0.00010	98	85	115			
Lab ID: **B17061657-013BMS**	Sample Matrix Spike					Run: HGCV202-B_170623B			06/23/17 14:51	
Mercury		0.0159	mg/L	0.0010	103	70	130			
Lab ID: **B17061657-013BMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170623B			06/23/17 14:53	
Mercury		0.0159	mg/L	0.0010	103	70	130	0.0	30	
Method: **E245.1**									Analytical Run: HGCV202-B_170627A	
Lab ID: **ICV**	Initial Calibration Verification Standard								06/27/17 10:31	
Mercury		0.00195	mg/L	0.00010	98	90	110			
Method: **E245.1**									Batch: 110934	
Lab ID: **MB-110934**	Method Blank					Run: HGCV202-B_170627A			06/27/17 10:37	
Mercury		0.00002	mg/L	6E-06						
Lab ID: **LCS-110934**	Laboratory Control Sample					Run: HGCV202-B_170627A			06/27/17 10:39	
Mercury		0.00198	mg/L	0.00010	98	85	115			
Lab ID: **B17061657-013BMS**	Sample Matrix Spike					Run: HGCV202-B_170627A			06/27/17 10:43	
Mercury		0.0466	mg/L	0.0010	88	70	130			
Lab ID: **B17061657-013BMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170627A			06/27/17 10:44	
Mercury		0.0474	mg/L	0.0010	90	70	130	1.6	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency

B17061657

Login completed by: Kathi Renier
Date Received: 6/16/2017

Reviewed by: BL2000\tedwards
Received by: qej

Reviewed Date: 6/21/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 3.3°C, shipping container 2 was 4.5°C, shipping container 3 was 1.1°C, shipping container 4 was 1.8°C, shipping container 5 was 2.6°C, and shipping container 6 was 3.0°C.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755. S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	Client: Texas Municipal Power Agency Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	AP MW-1D	6/13/17	1540	4	W	X	X			B1706165 7-1
2	AP MW-1		1700							2
3	SSP MW-3		1825							3
4	EQBK/SCM/061317		1915							4
5	DUP-2		—							5
6	SFL MW-5	6/14/17	1030							6
7	SSP MW-2		1034							7
8	SFL MW-2		1130							8
9	SSP MW-4		1149							9
10	EQBK-BJG-061417		1255							10

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	6/15/17 @1330	Brian Gieselman	Winnie Sykes	6/16/17 10:15	
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

Chain of Custody & Analytical Request Record

ENERGY LAB — Trust our People. Trust our Data.

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.	Client: Texas Municipal Power Agency Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	EQBK/SCM/061417	6/14/17	1255	4	W	X	X			B706165 7-11
2	MNW-17		1353							12
3	MNW-15		1420							13
4	MNW-16		1513							14
5	SFL MW-7		1530							15
6	MNW-11		1628							16
7	SFL MW-3		1650							17
8	SFL MW-4		1745							18
9	DUP-3	↓	—	↓	↓	↓	↓			19
10										

Custody Record MUST be signed	Relinquished by (print): Brian Gieselman	Date/Time: 6/15/17 @ 1330	Signature: Brian Gieselman	Received by (print): Maurice James	Date/Time: 6/16/17 10:15
	Relinquished by (print):	Date/Time:	Signature:	Received by Laboratory (print):	Date/Time: Signature:

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. All subcontracted data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17062700 Quote ID: B3997 - CCRR

Project Name: TMPA GC Mine CCR

Energy Laboratories Inc Billings MT received the following 10 samples for Texas Municipal Power Agency on 6/29/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17062700-001	MNW-18	06/27/17 14:15	06/29/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Solids, Total Dissolved
B17062700-005	SFL MW-7	06/28/17 12:50	06/29/17	Ground Water	Same As Above
B17062700-006	MNW-15	06/28/17 13:40	06/29/17	Ground Water	Same As Above
B17062700-008	EQBK-SCM-062717	06/27/17 18:30	06/29/17	Ground Water	Same As Above
B17062700-009	EQBK-SCM-062817	06/28/17 11:00	06/29/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Work Order: B17062700

Revised Date: 12/21/17
Report Date: 07/13/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062700-001
Client Sample ID: MNW-18

Revised Date: 12/21/17
Report Date: 07/13/17
Collection Date: 06/27/17 14:15
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	394	mg/L		1		E200.7	07/06/17 00:03 / rlh
Magnesium	63	mg/L		1		E200.7	07/06/17 00:03 / rlh
Potassium	36	mg/L		1		E200.7	07/06/17 00:03 / rlh
Sodium	742	mg/L	D	4		E200.7	07/06/17 00:03 / rlh
PHYSICAL PROPERTIES							
pH	7.1	s.u.	H	0.1		A4500-H B	06/29/17 18:09 / pjw
Solids, Total Dissolved TDS @ 180 C	3680	mg/L	D	40		A2540 C	06/30/17 13:54 / rik
INORGANICS							
Chloride	534	mg/L	D	6		E300.0	07/04/17 20:36 / cjm
Sulfate	1960	mg/L	D	20		E300.0	07/04/17 20:36 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	06/30/17 12:32 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/03/17 16:25 / car
Arsenic	ND	mg/L		0.01		E200.8	07/03/17 16:25 / car
Barium	0.06	mg/L		0.01		E200.8	07/03/17 16:25 / car
Beryllium	ND	mg/L		0.001		E200.8	07/03/17 16:25 / car
Boron	0.43	mg/L		0.05		E200.7	07/06/17 00:03 / rlh
Cadmium	ND	mg/L		0.005		E200.8	07/03/17 16:25 / car
Chromium	ND	mg/L		0.01		E200.8	07/05/17 23:31 / jpv
Cobalt	ND	mg/L		0.02		E200.8	07/03/17 16:25 / car
Lead	0.01	mg/L		0.01		E200.8	07/03/17 16:25 / car
Lithium	0.45	mg/L	D	0.04		E200.7	07/06/17 00:03 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/30/17 15:16 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/05/17 23:31 / jpv
Selenium	ND	mg/L		0.01		E200.8	07/03/17 16:25 / car
Thallium	ND	mg/L		0.002		E200.8	07/03/17 16:25 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062700-005
Client Sample ID: SFL MW-7

Revised Date: 12/21/17
Report Date: 07/13/17
Collection Date: 06/28/17 12:50
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	620	mg/L		1		E200.7	07/06/17 00:34 / rlh
Magnesium	96	mg/L		1		E200.7	07/06/17 00:34 / rlh
Potassium	47	mg/L		1		E200.7	07/06/17 00:34 / rlh
Sodium	1240	mg/L	D	4		E200.7	07/06/17 00:34 / rlh
PHYSICAL PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	06/29/17 18:20 / pjw
Solids, Total Dissolved TDS @ 180 C	6620	mg/L	D	90		A2540 C	06/30/17 13:54 / rik
INORGANICS							
Chloride	2850	mg/L	D	6		E300.0	07/04/17 23:12 / cjm
Sulfate	787	mg/L	D	20		E300.0	07/04/17 23:12 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	06/30/17 12:56 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/03/17 20:15 / car
Arsenic	ND	mg/L		0.01		E200.8	07/03/17 20:15 / car
Barium	0.03	mg/L		0.01		E200.8	07/03/17 20:15 / car
Beryllium	ND	mg/L		0.001		E200.8	07/05/17 23:47 / jpv
Boron	0.73	mg/L		0.05		E200.7	07/06/17 00:34 / rlh
Cadmium	ND	mg/L		0.005		E200.8	07/03/17 20:15 / car
Chromium	ND	mg/L		0.01		E200.8	07/03/17 20:15 / car
Cobalt	ND	mg/L		0.02		E200.8	07/03/17 20:15 / car
Lead	ND	mg/L		0.01		E200.8	07/03/17 20:15 / car
Lithium	0.46	mg/L	D	0.04		E200.7	07/06/17 00:34 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/30/17 15:32 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/03/17 20:15 / car
Selenium	0.01	mg/L		0.01		E200.8	07/03/17 20:15 / car
Thallium	ND	mg/L		0.002		E200.8	07/03/17 20:15 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062700-006
Client Sample ID: MNW-15

Revised Date: 12/21/17
Report Date: 07/13/17
Collection Date: 06/28/17 13:40
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	263	mg/L		1		E200.7	07/06/17 00:38 / rlh
Magnesium	49	mg/L		1		E200.7	07/06/17 00:38 / rlh
Potassium	29	mg/L		1		E200.7	07/06/17 00:38 / rlh
Sodium	468	mg/L	D	2		E200.7	07/06/17 00:38 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	06/29/17 18:22 / pjw
Solids, Total Dissolved TDS @ 180 C	2580	mg/L	D	40		A2540 C	06/30/17 13:54 / rik
INORGANICS							
Chloride	734	mg/L	D	3		E300.0	07/04/17 23:31 / cjm
Sulfate	1290	mg/L	D	9		E300.0	07/04/17 23:31 / cjm
Fluoride	0.5	mg/L		0.1		A4500-F C	06/30/17 13:07 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/03/17 20:17 / car
Arsenic	ND	mg/L		0.01		E200.8	07/03/17 20:17 / car
Barium	0.03	mg/L		0.01		E200.8	07/03/17 20:17 / car
Beryllium	0.076	mg/L		0.001		E200.7	07/06/17 00:38 / rlh
Boron	9.67	mg/L		0.05		E200.7	07/06/17 00:38 / rlh
Cadmium	0.089	mg/L		0.005		E200.8	07/03/17 20:17 / car
Chromium	ND	mg/L		0.01		E200.8	07/03/17 20:17 / car
Cobalt	0.30	mg/L		0.02		E200.8	07/03/17 20:17 / car
Lead	ND	mg/L		0.01		E200.8	07/03/17 20:17 / car
Lithium	0.08	mg/L	D	0.02		E200.7	07/06/17 00:38 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/30/17 15:33 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/03/17 20:17 / car
Selenium	0.02	mg/L		0.01		E200.8	07/03/17 20:17 / car
Thallium	ND	mg/L		0.002		E200.8	07/03/17 20:17 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062700-008
Client Sample ID: EQBK-SCM-062717

Revised Date: 12/21/17
Report Date: 07/13/17
Collection Date: 06/27/17 18:30
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	07/06/17 00:45 / rlh
Magnesium	ND	mg/L		1		E200.7	07/06/17 00:45 / rlh
Potassium	ND	mg/L		1		E200.7	07/06/17 00:45 / rlh
Sodium	ND	mg/L		1		E200.7	07/06/17 00:45 / rlh
PHYSICAL PROPERTIES							
pH	6.4	s.u.	H	0.1		A4500-H B	06/29/17 18:30 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/30/17 13:54 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	07/05/17 00:11 / cjm
Sulfate	ND	mg/L		1		E300.0	07/05/17 00:11 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	06/30/17 13:18 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/03/17 20:31 / car
Arsenic	ND	mg/L		0.01		E200.8	07/03/17 20:31 / car
Barium	ND	mg/L		0.01		E200.8	07/03/17 20:31 / car
Beryllium	ND	mg/L		0.001		E200.7	07/06/17 00:45 / rlh
Boron	ND	mg/L		0.05		E200.7	07/06/17 00:45 / rlh
Cadmium	ND	mg/L		0.05		E200.8	07/03/17 20:31 / car
Chromium	ND	mg/L		0.01		E200.8	07/03/17 20:31 / car
Cobalt	ND	mg/L		0.02		E200.8	07/03/17 20:31 / car
Lead	ND	mg/L		0.01		E200.8	07/03/17 20:31 / car
Lithium	ND	mg/L		0.01		E200.7	07/06/17 00:45 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/30/17 15:37 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/03/17 20:31 / car
Selenium	ND	mg/L		0.01		E200.8	07/03/17 20:31 / car
Thallium	ND	mg/L		0.002		E200.8	07/03/17 20:31 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062700-009
Client Sample ID: EQBK-SCM-062817

Revised Date: 12/21/17
Report Date: 07/13/17
Collection Date: 06/28/17 11:00
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	07/06/17 00:48 / rlh
Magnesium	ND	mg/L		1		E200.7	07/06/17 00:48 / rlh
Potassium	ND	mg/L		1		E200.7	07/06/17 00:48 / rlh
Sodium	ND	mg/L		1		E200.7	07/06/17 00:48 / rlh
PHYSICAL PROPERTIES							
pH	6.0	s.u.	H	0.1		A4500-H B	06/29/17 18:33 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/30/17 13:54 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	07/05/17 00:30 / cjm
Sulfate	ND	mg/L		1		E300.0	07/05/17 00:30 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	06/30/17 13:25 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/03/17 20:33 / car
Arsenic	ND	mg/L		0.01		E200.8	07/03/17 20:33 / car
Barium	ND	mg/L		0.01		E200.8	07/03/17 20:33 / car
Beryllium	ND	mg/L		0.001		E200.7	07/06/17 00:48 / rlh
Boron	ND	mg/L		0.05		E200.7	07/06/17 00:48 / rlh
Cadmium	ND	mg/L		0.005		E200.8	07/03/17 20:33 / car
Chromium	ND	mg/L		0.01		E200.8	07/03/17 20:33 / car
Cobalt	ND	mg/L		0.02		E200.8	07/03/17 20:33 / car
Lead	ND	mg/L		0.01		E200.8	07/03/17 20:33 / car
Lithium	ND	mg/L		0.01		E200.7	07/06/17 00:48 / rlh
Mercury	ND	mg/L		0.001		E245.1	06/30/17 15:39 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/03/17 20:33 / car
Selenium	ND	mg/L		0.01		E200.8	07/03/17 20:33 / car
Thallium	ND	mg/L		0.002		E200.8	07/03/17 20:33 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/13/17
Project: TMPA GC Mine CCR
Work Order: B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170705A	
Lab ID: ICV	7	Continuing Calibration Verification Standard							07/05/17 09:44	
Beryllium		1.18	mg/L	0.010	95	95	105			
Boron		2.39	mg/L	0.10	96	95	105			
Calcium		24.7	mg/L	1.0	99	95	105			
Lithium		1.22	mg/L	0.10	97	95	105			
Magnesium		24.6	mg/L	1.0	99	95	105			
Potassium		24.5	mg/L	1.0	98	95	105			
Sodium		24.4	mg/L	1.0	98	95	105			
Method: E200.7									Batch: 111112	
Lab ID: MB-111112	7	Method Blank				Run: ICP203-B_170705A			07/05/17 23:56	
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: LCS-111112	7	Laboratory Control Sample				Run: ICP203-B_170705A			07/06/17 00:00	
Beryllium		0.256	mg/L	0.010	103	85	115			
Boron		0.468	mg/L	0.10	94	85	115			
Calcium		24.0	mg/L	1.0	96	85	115			
Lithium		0.503	mg/L	0.10	101	85	115			
Magnesium		24.0	mg/L	1.0	96	85	115			
Potassium		25.4	mg/L	1.0	101	85	115			
Sodium		25.3	mg/L	1.0	101	85	115			
Lab ID: B17062700-001BMS3	7	Sample Matrix Spike				Run: ICP203-B_170705A			07/06/17 00:13	
Beryllium		0.266	mg/L	0.0014	106	70	130			
Boron		0.983	mg/L	0.050	110	70	130			
Calcium		419	mg/L	1.0		70	130			A
Lithium		0.994	mg/L	0.10	108	70	130			
Magnesium		87.6	mg/L	1.0	98	70	130			
Potassium		63.6	mg/L	1.0	111	70	130			
Sodium		789	mg/L	4.2		70	130			A
Lab ID: B17062700-001BMSD	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170705A			07/06/17 00:24	
Beryllium		0.254	mg/L	0.0014	102	70	130	4.4	20	
Boron		0.976	mg/L	0.050	109	70	130	0.8	20	
Calcium		398	mg/L	1.0		70	130	5.0	20	A
Lithium		0.930	mg/L	0.10	95	70	130	6.7	20	
Magnesium		82.0	mg/L	1.0	76	70	130	6.6	20	
Potassium		59.2	mg/L	1.0	93	70	130	7.3	20	
Sodium		739	mg/L	4.2		70	130	6.6	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/13/17
Project: TMPA GC Mine CCR
Work Order: B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 111153
Lab ID: MB-111153	6	Method Blank				Run: ICP203-B_170705A				07/06/17 02:16
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: LCS-111153	6	Laboratory Control Sample				Run: ICP203-B_170705A				07/06/17 02:19
Boron		0.462	mg/L	0.10	92	85	115			
Calcium		25.5	mg/L	1.0	102	85	115			
Lithium		0.510	mg/L	0.10	102	85	115			
Magnesium		25.9	mg/L	1.0	104	85	115			
Potassium		26.2	mg/L	1.0	105	85	115			
Sodium		24.8	mg/L	1.0	99	85	115			
Lab ID: B17062657-004BMS3	6	Sample Matrix Spike				Run: ICP203-B_170705A				07/06/17 02:33
Boron		1.20	mg/L	0.050	99	70	130			
Calcium		67.9	mg/L	1.0	104	70	130			
Lithium		0.556	mg/L	0.10	98	70	130			
Magnesium		47.8	mg/L	1.0	104	70	130			
Potassium		377	mg/L	1.0		70	130			A
Sodium		267	mg/L	1.0		70	130			A
Lab ID: B17062657-004BMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_170705A				07/06/17 02:36
Boron		1.17	mg/L	0.050	92	70	130	2.9	20	
Calcium		65.3	mg/L	1.0	94	70	130	3.9	20	
Lithium		0.542	mg/L	0.10	95	70	130	2.5	20	
Magnesium		45.8	mg/L	1.0	96	70	130	4.1	20	
Potassium		372	mg/L	1.0		70	130	1.4	20	A
Sodium		262	mg/L	1.0		70	130	1.7	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS202-B_170703A	
Lab ID: QCS	11	Initial Calibration Verification Standard							07/03/17 19:09	
Antimony		0.0491	mg/L	0.050	98	90	110			
Arsenic		0.0493	mg/L	0.0050	99	90	110			
Barium		0.0500	mg/L	0.10	100	90	110			
Beryllium		0.0245	mg/L	0.0010	98	90	110			
Cadmium		0.0258	mg/L	0.0010	103	90	110			
Chromium		0.0504	mg/L	0.010	101	90	110			
Cobalt		0.0501	mg/L	0.010	100	90	110			
Lead		0.0490	mg/L	0.010	98	90	110			
Molybdenum		0.0462	mg/L	0.0050	92	90	110			
Selenium		0.0523	mg/L	0.0050	105	90	110			
Thallium		0.0489	mg/L	0.10	98	90	110			
Method: E200.8									Batch: 111112	
Lab ID: MB-111112	11	Method Blank				Run: ICPMS202-B_170703A			07/03/17 14:44	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.00006						
Barium		ND	mg/L	0.00004						
Beryllium		ND	mg/L	0.00002						
Cadmium		ND	mg/L	0.00002						
Chromium		0.0006	mg/L	0.00009						
Cobalt		ND	mg/L	0.00003						
Lead		ND	mg/L	0.00005						
Molybdenum		0.0003	mg/L	0.00007						
Selenium		ND	mg/L	0.0002						
Thallium		ND	mg/L	0.0001						
Lab ID: LCS-111112	11	Laboratory Control Sample				Run: ICPMS202-B_170703A			07/03/17 15:10	
Antimony		0.504	mg/L	0.0010	101	85	115			
Arsenic		0.506	mg/L	0.0010	101	85	115			
Barium		0.509	mg/L	0.050	102	85	115			
Beryllium		0.284	mg/L	0.0010	114	85	115			
Cadmium		0.262	mg/L	0.0010	105	85	115			
Chromium		0.571	mg/L	0.0050	114	85	115			
Cobalt		0.556	mg/L	0.0050	111	85	115			
Lead		0.569	mg/L	0.0010	114	85	115			
Molybdenum		0.529	mg/L	0.0010	106	85	115			
Selenium		0.502	mg/L	0.0010	100	85	115			
Thallium		0.565	mg/L	0.00050	113	85	115			
Lab ID: B17062700-001BMS3	11	Sample Matrix Spike				Run: ICPMS202-B_170703A			07/03/17 16:27	
Antimony		0.518	mg/L	0.0010	103	70	130			
Arsenic		0.532	mg/L	0.0010	105	70	130			
Barium		0.585	mg/L	0.050	105	70	130			
Beryllium		0.214	mg/L	0.0010	86	70	130			
Cadmium		0.244	mg/L	0.0010	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/13/17
Project: TMPA GC Mine CCR
Work Order: B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 111112
Lab ID: B17062700-001BMS3	11	Sample Matrix Spike				Run: ICPMS202-B_170703A				07/03/17 16:27
Chromium		0.576	mg/L	0.0050	115	70	130			
Cobalt		0.541	mg/L	0.0050	108	70	130			
Lead		0.606	mg/L	0.0010	119	70	130			
Molybdenum		0.531	mg/L	0.0010	106	70	130			
Selenium		0.444	mg/L	0.0010	88	70	130			
Thallium		0.560	mg/L	0.00050	112	70	130			
Lab ID: B17062700-001BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170703A				07/03/17 16:30
Antimony		0.541	mg/L	0.0010	108	70	130	4.4	20	
Arsenic		0.530	mg/L	0.0010	105	70	130	0.4	20	
Barium		0.606	mg/L	0.050	109	70	130	3.5	20	
Beryllium		0.210	mg/L	0.0010	84	70	130	2.4	20	
Cadmium		0.253	mg/L	0.0010	101	70	130	3.8	20	
Chromium		0.584	mg/L	0.0050	116	70	130	1.5	20	
Cobalt		0.538	mg/L	0.0050	107	70	130	0.6	20	
Lead		0.600	mg/L	0.0010	117	70	130	1.0	20	
Molybdenum		0.552	mg/L	0.0010	110	70	130	4.0	20	
Selenium		0.454	mg/L	0.0010	90	70	130	2.2	20	
Thallium		0.556	mg/L	0.00050	111	70	130	0.8	20	
Method: E200.8										Batch: 111153
Lab ID: MB-111153	11	Method Blank				Run: ICPMS202-B_170703A				07/03/17 14:41
Antimony		ND	mg/L	0.00004						
Arsenic		0.00007	mg/L	0.00006						
Barium		ND	mg/L	0.00004						
Beryllium		ND	mg/L	0.00002						
Cadmium		ND	mg/L	0.00002						
Chromium		ND	mg/L	0.00009						
Cobalt		ND	mg/L	0.00003						
Lead		ND	mg/L	0.00005						
Molybdenum		0.0002	mg/L	0.00007						
Selenium		ND	mg/L	0.0002						
Thallium		ND	mg/L	0.0001						
Lab ID: LCS-111153	11	Laboratory Control Sample				Run: ICPMS202-B_170703A				07/03/17 15:54
Antimony		0.492	mg/L	0.0010	98	85	115			
Arsenic		0.496	mg/L	0.0010	99	85	115			
Barium		0.492	mg/L	0.050	98	85	115			
Beryllium		0.279	mg/L	0.0010	111	85	115			
Cadmium		0.255	mg/L	0.0010	102	85	115			
Chromium		0.556	mg/L	0.0050	111	85	115			
Cobalt		0.552	mg/L	0.0050	110	85	115			
Lead		0.555	mg/L	0.0010	111	85	115			
Molybdenum		0.517	mg/L	0.0010	103	85	115			
Selenium		0.497	mg/L	0.0010	99	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/13/17
Project: TMPA GC Mine CCR
Work Order: B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 111153
Lab ID: LCS-111153	11	Laboratory Control Sample				Run: ICPMS202-B_170703A				07/03/17 15:54
Thallium		0.555	mg/L	0.00050	111	85	115			
Lab ID: B17062657-004BMS	11	Sample Matrix Spike				Run: ICPMS202-B_170703A				07/03/17 19:22
Antimony		0.504	mg/L	0.0010	101	70	130			
Arsenic		0.598	mg/L	0.0010	101	70	130			
Barium		0.648	mg/L	0.050	103	70	130			
Beryllium		0.226	mg/L	0.0010	91	70	130			
Cadmium		0.241	mg/L	0.0010	96	70	130			
Chromium		0.550	mg/L	0.0050	109	70	130			
Cobalt		0.535	mg/L	0.0050	107	70	130			
Lead		0.544	mg/L	0.0010	109	70	130			
Molybdenum		0.876	mg/L	0.0010	96	70	130			
Selenium		0.621	mg/L	0.0010	95	70	130			
Thallium		0.565	mg/L	0.00050	113	70	130			
Lab ID: B17062657-004BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170703A				07/03/17 19:25
Antimony		0.503	mg/L	0.0010	100	70	130	0.2	20	
Arsenic		0.587	mg/L	0.0010	98	70	130	1.9	20	
Barium		0.634	mg/L	0.050	101	70	130	2.2	20	
Beryllium		0.226	mg/L	0.0010	90	70	130	0.2	20	
Cadmium		0.237	mg/L	0.0010	95	70	130	1.7	20	
Chromium		0.535	mg/L	0.0050	106	70	130	2.8	20	
Cobalt		0.525	mg/L	0.0050	105	70	130	1.8	20	
Lead		0.537	mg/L	0.0010	107	70	130	1.2	20	
Molybdenum		0.877	mg/L	0.0010	96	70	130	0.1	20	
Selenium		0.608	mg/L	0.0010	92	70	130	2.1	20	
Thallium		0.557	mg/L	0.00050	111	70	130	1.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS202-B_170705A	
Lab ID: QCS	3	Initial Calibration Verification Standard							07/05/17 19:19	
Beryllium		0.0252	mg/L	0.0010	101	90	110			
Chromium		0.0495	mg/L	0.010	99	90	110			
Molybdenum		0.0451	mg/L	0.0050	90	90	110			
Method: E200.8									Batch: 111112	
Lab ID: MB-111112	10	Method Blank				Run: ICPMS202-B_170705A			07/05/17 23:16	
Antimony		0.0001	mg/L	0.00004						
Arsenic		ND	mg/L	0.00006						
Barium		0.00007	mg/L	0.00004						
Beryllium		0.00003	mg/L	0.00002						
Cadmium		ND	mg/L	0.00002						
Chromium		0.0004	mg/L	0.00009						
Cobalt		0.00005	mg/L	0.00003						
Lead		0.0001	mg/L	0.00005						
Molybdenum		ND	mg/L	0.00005						
Thallium		ND	mg/L	0.0001						
Lab ID: LCS-111112	10	Laboratory Control Sample				Run: ICPMS202-B_170705A			07/05/17 23:18	
Antimony		0.558	mg/L	0.0010	112	85	115			
Arsenic		0.554	mg/L	0.0010	111	85	115			
Barium		0.557	mg/L	0.050	111	85	115			
Beryllium		0.232	mg/L	0.0010	93	85	115			
Cadmium		0.276	mg/L	0.0010	110	85	115			
Chromium		0.522	mg/L	0.0050	104	85	115			
Cobalt		0.501	mg/L	0.0050	100	85	115			
Lead		0.552	mg/L	0.0010	110	85	115			
Molybdenum		0.515	mg/L	0.0010	103	85	115			
Thallium		0.542	mg/L	0.00050	108	85	115			
Lab ID: B17062700-001BMS3	10	Sample Matrix Spike				Run: ICPMS202-B_170705A			07/05/17 23:34	
Antimony		0.552	mg/L	0.0010	110	70	130			
Arsenic		0.554	mg/L	0.0010	110	70	130			
Barium		0.623	mg/L	0.050	111	70	130			
Beryllium		0.198	mg/L	0.0010	79	70	130			
Cadmium		0.251	mg/L	0.0010	100	70	130			
Chromium		0.547	mg/L	0.0050	109	70	130			
Cobalt		0.531	mg/L	0.0050	106	70	130			
Lead		0.573	mg/L	0.0010	112	70	130			
Molybdenum		0.538	mg/L	0.0010	108	70	130			
Thallium		0.542	mg/L	0.00050	108	70	130			
Lab ID: B17062700-001BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170705A			07/05/17 23:37	
Antimony		0.574	mg/L	0.0010	115	70	130	3.9	20	
Arsenic		0.563	mg/L	0.0010	112	70	130	1.5	20	
Barium		0.648	mg/L	0.050	116	70	130	3.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/13/17
Project: TMPA GC Mine CCR
Work Order: B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 111112
Lab ID: B17062700-001BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170705A				07/05/17 23:37
Beryllium		0.186	mg/L	0.0010	74	70	130	6.4	20	
Cadmium		0.255	mg/L	0.0010	102	70	130	1.9	20	
Chromium		0.513	mg/L	0.0050	102	70	130	6.3	20	
Cobalt		0.491	mg/L	0.0050	98	70	130	7.7	20	
Lead		0.571	mg/L	0.0010	112	70	130	0.4	20	
Molybdenum		0.527	mg/L	0.0010	105	70	130	2.1	20	
Thallium		0.532	mg/L	0.00050	106	70	130	1.8	20	
Method: E200.8										Batch: 111153
Lab ID: MB-111153	11	Method Blank				Run: ICPMS202-B_170705A				07/05/17 22:42
Antimony		0.00005	mg/L	0.00004						
Arsenic		ND	mg/L	0.00006						
Barium		ND	mg/L	0.00004						
Beryllium		ND	mg/L	0.00002						
Cadmium		ND	mg/L	0.00002						
Chromium		0.0003	mg/L	0.00009						
Cobalt		ND	mg/L	0.00003						
Lead		ND	mg/L	0.00005						
Molybdenum		ND	mg/L	0.00005						
Selenium		0.0004	mg/L	0.0002						
Thallium		ND	mg/L	0.0001						
Lab ID: LCS-111153	11	Laboratory Control Sample				Run: ICPMS202-B_170705A				07/05/17 22:44
Antimony		0.562	mg/L	0.0010	112	85	115			
Arsenic		0.542	mg/L	0.0010	108	85	115			
Barium		0.554	mg/L	0.050	111	85	115			
Beryllium		0.214	mg/L	0.0010	86	85	115			
Cadmium		0.271	mg/L	0.0010	108	85	115			
Chromium		0.494	mg/L	0.0050	99	85	115			
Cobalt		0.478	mg/L	0.0050	96	85	115			
Lead		0.536	mg/L	0.0010	107	85	115			
Molybdenum		0.500	mg/L	0.0010	100	85	115			
Selenium		0.562	mg/L	0.0010	112	85	115			
Thallium		0.531	mg/L	0.00050	106	85	115			
Lab ID: B17062657-004BMS3	11	Sample Matrix Spike				Run: ICPMS202-B_170705A				07/05/17 23:00
Antimony		0.541	mg/L	0.0010	108	70	130			
Arsenic		0.619	mg/L	0.0010	103	70	130			
Barium		0.680	mg/L	0.050	108	70	130			
Beryllium		0.208	mg/L	0.0010	83	70	130			
Cadmium		0.254	mg/L	0.0010	102	70	130			
Chromium		0.522	mg/L	0.0050	104	70	130			
Cobalt		0.504	mg/L	0.0050	100	70	130			
Lead		0.544	mg/L	0.0010	109	70	130			
Molybdenum		0.902	mg/L	0.0010	100	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 111153
Lab ID: **B17062657-004BMS3**	11	Sample Matrix Spike				Run: ICPMS202-B_170705A				07/05/17 23:00
Selenium		0.653	mg/L	0.0010	98	70	130			
Thallium		0.541	mg/L	0.00050	108	70	130			
Lab ID: **B17062657-004BMSD**	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170705A				07/05/17 23:03
Antimony		0.551	mg/L	0.0010	110	70	130	1.8	20	
Arsenic		0.616	mg/L	0.0010	103	70	130	0.5	20	
Barium		0.677	mg/L	0.050	107	70	130	0.3	20	
Beryllium		0.198	mg/L	0.0010	79	70	130	5.0	20	
Cadmium		0.252	mg/L	0.0010	101	70	130	1.0	20	
Chromium		0.501	mg/L	0.0050	100	70	130	4.2	20	
Cobalt		0.489	mg/L	0.0050	97	70	130	3.1	20	
Lead		0.543	mg/L	0.0010	108	70	130	0.2	20	
Molybdenum		0.900	mg/L	0.0010	99	70	130	0.2	20	
Selenium		0.651	mg/L	0.0010	98	70	130	0.2	20	
Thallium		0.531	mg/L	0.00050	106	70	130	1.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170706A	
Lab ID: QCS	3	Initial Calibration Verification Standard							07/06/17 22:28	
Beryllium		0.0247	mg/L	0.0010	99	90	110			
Molybdenum		0.0456	mg/L	0.0050	91	90	110			
Selenium		0.0503	mg/L	0.0050	101	90	110			
Method: E200.8									Batch: 111112	
Lab ID: MB-111112	11	Method Blank				Run: ICPMS206-B_170706A			07/07/17 02:28	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00004	mg/L	7E-06						
Lab ID: LCS-111112	11	Laboratory Control Sample				Run: ICPMS206-B_170706A			07/07/17 02:34	
Antimony		0.515	mg/L	0.0010	103	85	115			
Arsenic		0.500	mg/L	0.0010	100	85	115			
Barium		0.502	mg/L	0.050	100	85	115			
Beryllium		0.235	mg/L	0.0010	94	85	115			
Cadmium		0.261	mg/L	0.0010	105	85	115			
Chromium		0.502	mg/L	0.0050	100	85	115			
Cobalt		0.499	mg/L	0.0050	100	85	115			
Lead		0.517	mg/L	0.0010	103	85	115			
Molybdenum		0.470	mg/L	0.0010	94	85	115			
Selenium		0.502	mg/L	0.0010	100	85	115			
Thallium		0.554	mg/L	0.00050	111	85	115			
Lab ID: B17062700-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170706A			07/07/17 02:38	
Antimony		0.509	mg/L	0.0010	102	70	130			
Arsenic		0.495	mg/L	0.0010	98	70	130			
Barium		0.548	mg/L	0.050	98	70	130			
Beryllium		0.226	mg/L	0.0010	90	70	130			
Cadmium		0.236	mg/L	0.0010	95	70	130			
Chromium		0.507	mg/L	0.0050	101	70	130			
Cobalt		0.494	mg/L	0.0050	98	70	130			
Lead		0.499	mg/L	0.0010	97	70	130			
Molybdenum		0.479	mg/L	0.0010	96	70	130			
Selenium		0.409	mg/L	0.0010	82	70	130			
Thallium		0.512	mg/L	0.00050	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 111112
Lab ID: **B17062700-001BMSD**	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170706A				07/07/17 02:41
Antimony		0.515	mg/L	0.0010	103	70	130	1.3	20	
Arsenic		0.501	mg/L	0.0010	99	70	130	1.2	20	
Barium		0.563	mg/L	0.050	101	70	130	2.7	20	
Beryllium		0.226	mg/L	0.0010	90	70	130	0.2	20	
Cadmium		0.238	mg/L	0.0010	95	70	130	0.6	20	
Chromium		0.518	mg/L	0.0050	103	70	130	2.3	20	
Cobalt		0.493	mg/L	0.0050	98	70	130	0.2	20	
Lead		0.480	mg/L	0.0010	94	70	130	3.9	20	
Molybdenum		0.486	mg/L	0.0010	97	70	130	1.4	20	
Selenium		0.424	mg/L	0.0010	85	70	130	3.4	20	
Thallium		0.504	mg/L	0.00050	101	70	130	1.6	20	
Method: **E200.8**										Batch: 111153
Lab ID: **MB-111153**	11	Method Blank				Run: ICPMS206-B_170706A				07/07/17 03:25
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00003	mg/L	7E-06						
Lab ID: **LCS-111153**	11	Laboratory Control Sample				Run: ICPMS206-B_170706A				07/07/17 03:35
Antimony		0.518	mg/L	0.0010	104	85	115			
Arsenic		0.493	mg/L	0.0010	99	85	115			
Barium		0.503	mg/L	0.050	101	85	115			
Beryllium		0.229	mg/L	0.0010	92	85	115			
Cadmium		0.256	mg/L	0.0010	102	85	115			
Chromium		0.483	mg/L	0.0050	97	85	115			
Cobalt		0.478	mg/L	0.0050	96	85	115			
Lead		0.529	mg/L	0.0010	106	85	115			
Molybdenum		0.468	mg/L	0.0010	94	85	115			
Selenium		0.494	mg/L	0.0010	99	85	115			
Thallium		0.568	mg/L	0.00050	114	85	115			
Lab ID: **B17062859-008DMS3**	11	Sample Matrix Spike				Run: ICPMS206-B_170706A				07/07/17 03:49
Antimony		0.502	mg/L	0.0010	100	70	130			
Arsenic		0.480	mg/L	0.0010	96	70	130			
Barium		0.484	mg/L	0.050	97	70	130			
Beryllium		0.222	mg/L	0.0010	89	70	130			
Cadmium		0.255	mg/L	0.0010	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 111153
Lab ID: B17062859-008DMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170706A				07/07/17 03:49
Chromium		0.480	mg/L	0.0050	96	70	130			
Cobalt		0.474	mg/L	0.0050	95	70	130			
Lead		0.466	mg/L	0.0010	93	70	130			
Molybdenum		0.452	mg/L	0.0010	90	70	130			
Selenium		0.506	mg/L	0.0010	101	70	130			
Thallium		0.534	mg/L	0.00050	107	70	130			
Lab ID: B17062859-008DMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170706A				07/07/17 03:52
Antimony		0.511	mg/L	0.0010	102	70	130	1.8	20	
Arsenic		0.491	mg/L	0.0010	98	70	130	2.4	20	
Barium		0.493	mg/L	0.050	98	70	130	1.7	20	
Beryllium		0.229	mg/L	0.0010	92	70	130	2.9	20	
Cadmium		0.259	mg/L	0.0010	104	70	130	1.6	20	
Chromium		0.486	mg/L	0.0050	97	70	130	1.2	20	
Cobalt		0.484	mg/L	0.0050	97	70	130	2.2	20	
Lead		0.482	mg/L	0.0010	96	70	130	3.5	20	
Molybdenum		0.457	mg/L	0.0010	91	70	130	1.0	20	
Selenium		0.491	mg/L	0.0010	98	70	130	2.9	20	
Thallium		0.551	mg/L	0.00050	110	70	130	3.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170630A	
Lab ID: **ICV**	Initial Calibration Verification Standard								06/30/17 13:51	
Mercury		0.00204	mg/L	0.00010	102	90	110			
Method: **E245.1**									Batch: 111118	
Lab ID: **MB-111118**	Method Blank					Run: HGCV202-B_170630A			06/30/17 14:50	
Mercury		8E-06	mg/L	6E-06						
Lab ID: **LCS-111118**	Laboratory Control Sample					Run: HGCV202-B_170630A			06/30/17 14:52	
Mercury		0.00204	mg/L	0.00010	102	85	115			
Lab ID: **B17062700-003BMS**	Sample Matrix Spike					Run: HGCV202-B_170630A			06/30/17 15:26	
Mercury		0.00188	mg/L	0.00010	93	70	130			
Lab ID: **B17062700-003BMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170630A			06/30/17 15:28	
Mercury		0.00188	mg/L	0.00010	93	70	130	0.2	30	
Method: **E245.1**									Analytical Run: HGCV202-B_170703A	
Lab ID: **ICV**	Initial Calibration Verification Standard								07/03/17 09:28	
Mercury		0.00192	mg/L	0.00010	96	90	110			
Method: **E245.1**									Batch: 111139	
Lab ID: **MB-111139**	Method Blank					Run: HGCV202-B_170703A			07/03/17 11:06	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-111139**	Laboratory Control Sample					Run: HGCV202-B_170703A			07/03/17 11:07	
Mercury		0.00201	mg/L	0.00010	100	85	115			
Lab ID: **B17062861-001AMS**	Sample Matrix Spike					Run: HGCV202-B_170703A			07/03/17 11:36	
Mercury		0.00203	mg/L	0.00010	101	70	130			
Lab ID: **B17062861-001AMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170703A			07/03/17 11:38	
Mercury		0.00202	mg/L	0.00010	100	70	130	0.6	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 07/13/17
Project: TMPA GC Mine CCR
Work Order: B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 111143
Lab ID: B17062664-006A DUP	Sample Duplicate					Run: BAL #SD-15_170630D				06/30/17 13:54
Solids, Total Dissolved TDS @ 180 C		3440	mg/L	40				0.5	5	
Lab ID: B17062700-002A DUP	Sample Duplicate					Run: BAL #SD-15_170630D				06/30/17 13:54
Solids, Total Dissolved TDS @ 180 C		5630	mg/L	94				0.2	5	
Lab ID: LCS-111143	Laboratory Control Sample					Run: BAL #SD-15_170630D				06/30/17 13:54
Solids, Total Dissolved TDS @ 180 C		975	mg/L	10	97	90	110			
Lab ID: MB-111143	Method Blank					Run: BAL #SD-15_170630D				06/30/17 13:54
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170630A	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/30/17 09:40	
Fluoride		0.940	mg/L	0.10	94	90	110			
Method: **A4500-F C**									Batch: R282467	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170630A			06/30/17 09:48	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170630A			06/30/17 09:51	
Fluoride		0.990	mg/L	0.10	99	90	110			
Lab ID: **B17062664-002AMS**		Sample Matrix Spike				Run: MAN-TECH_170630A			06/30/17 12:13	
Fluoride		0.960	mg/L	0.10	85	80	120			
Lab ID: **B17062664-002AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170630A			06/30/17 12:16	
Fluoride		1.02	mg/L	0.10	91	80	120	6.1	10	
Lab ID: **B17062700-005AMS**		Sample Matrix Spike				Run: MAN-TECH_170630A			06/30/17 12:58	
Fluoride		1.00	mg/L	0.10	92	80	120			
Lab ID: **B17062700-005AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170630A			06/30/17 13:01	
Fluoride		1.01	mg/L	0.10	93	80	120	1.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170629A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								06/29/17 08:41	
pH		7.98	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R282329	
Lab ID: **B17062700-007ADUP**	Sample Duplicate					Run: PHSC _101-B_170629A			06/29/17 18:28	
pH		7.31	s.u.	0.10				0.3	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 07/13/17

Project: TMPA GC Mine CCR **Work Order:** B17062700

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC METROHM 2_170703A	
Lab ID: **ICV**	2	Initial Calibration Verification Standard							07/03/17 13:02	
Chloride		2.20	mg/L	1.0	98	90	110			
Sulfate		8.69	mg/L	1.0	97	90	110			
Method: **E300.0**									Batch: R282595	
Lab ID: **ICB**	2	Method Blank				Run: IC METROHM 2_170703A			07/03/17 13:21	
Chloride		ND	mg/L	0.002						
Sulfate		ND	mg/L	0.03						
Lab ID: **LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_170703A			07/03/17 13:41	
Chloride		10.4	mg/L	1.0	104	90	110			
Sulfate		31.1	mg/L	1.0	104	90	110			
Lab ID: **B17062700-003AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170703A			07/04/17 22:13	
Chloride		5870	mg/L	12	96	90	110			
Sulfate		8370	mg/L	37	106	90	110			
Lab ID: **B17062700-003AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170703A			07/04/17 22:33	
Chloride		5850	mg/L	12	95	90	110	0.3	20	
Sulfate		8350	mg/L	37	106	90	110	0.2	20	
Lab ID: **B17062701-003AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170703A			07/05/17 02:47	
Chloride		554	mg/L	3.1	108	90	110			
Sulfate		2520	mg/L	9.2	106	90	110			
Lab ID: **B17062701-003AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170703A			07/05/17 03:06	
Chloride		554	mg/L	3.1	108	90	110	0.0	20	
Sulfate		2510	mg/L	9.2	106	90	110	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency B17062700

Login completed by: Gina McCartney
Date Received: 6/29/2017
Reviewed by: BL2000\tedwards
Received by: rs4
Reviewed Date: 7/5/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The temperature of the sample(s) for shipping container 1 was 2.3°C, shipping container 2 was 2.1°C and shipping container 3 was 1.9°C.

Radiochemistry analysis on separate work order per Shari Endy, Energy Laboratories Project Manager.

ENERGY
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page 1 of 1

Account Information (Billing information)

Company/Name	AMEC Foster Wheeler
Contact	Greg Seifert
Phone	512-241-2310
Mailing Address	3755 S. Capital of Tx Hwy Ste 375
City, State, Zip	Austin Tx, 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☐ Hard Copy ☑ Email
Receive Report	☐ Hard Copy ☑ Email
Purchase Order	
Quote	3997
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Call Greg for any questions

MNW-17 only has one out of two Radium Jugs

* If possible, use the full Jug only for MNW-11 for Radium 226 + 228

Project Information

Project Name, PWSID, Permit, etc.	TMPA GC Mine CCR
Sampler Name	Samuel Macon
Sampler Phone	512-413-3876
Sample Origin State	Tx
EPA/State Compliance	☑ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1+2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MNW-18	6-27-17	1415	4	W	X			B17062700-001
2	MNW-17	6-27-17	1545	3		X			-002
3	MNW-16	6-27-17	1730	4		X			-003
4	AP MW-6	6-28-17	1030	4		X			-004
5	SFL MW-7	6-28-17	1250	4		X			-005
6	MNW-15	6-28-17	1340	4		X			-006
7	MNW-11	6-28-17	1450	4(35)		X			-007
8	EQBK-SCM-062717	6-27-17	1830	4		X			-008
9	EQBK-SCM-062817	6-28-17	1100	4		X			-009
10	Dup-1	6-27-17	-	4		X			-010

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Samuel C. Macon	6-28-17 1630	Samuel C. Macon			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					6/29/17 10:00	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

July 31, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17062770 Quote ID: B3997 - CCRR

Project Name: TMPA GC Mine CCR

Energy Laboratories Inc Billings MT received the following 10 samples for Texas Municipal Power Agency on 6/29/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17062770-001	MNW-18	06/27/17 14:15	06/29/17	Ground Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
B17062770-005	SFL MW-7	06/28/17 12:50	06/29/17	Ground Water	Same As Above
B17062770-006	MNW-15	06/28/17 13:40	06/29/17	Ground Water	Same As Above
B17062770-008	EQBK-SCM-062717	06/27/1 18:30	06/29/17	Ground Water	Same As Above
B17062770-009	EQBK-SCM-062817	06/28/17 11:00	06/29/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Work Order: B17062770

Report Date: 07/31/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062770-001
Client Sample ID: MNW-18

Report Date: 07/31/17
Collection Date: 06/27/17 14:15
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	2.3	pCi/L				E903.0	07/18/17 12:24 / eli-ca
Radium 226 precision (±)	0.52	pCi/L				E903.0	07/18/17 12:24 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	07/18/17 12:24 / eli-ca
Radium 228	3.7	pCi/L				RA-05	07/13/17 14:11 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	07/13/17 14:11 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	07/13/17 14:11 / eli-ca
Radium 226 + Radium 228	6.1	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062770-005
Client Sample ID: SFL MW-7

Report Date: 07/31/17
Collection Date: 06/28/17 12:50
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 226 precision (±)	0.28	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 228	1.5	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 228 precision (±)	0.89	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 226 + Radium 228	2.6	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062770-006
Client Sample ID: MNW-15

Report Date: 07/31/17
Collection Date: 06/28/17 13:40
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.43	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 226 precision (±)	0.15	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 228	1.1	pCi/L	U			RA-05	07/13/17 14:10 / eli-ca
Radium 228 precision (±)	0.92	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 226 + Radium 228	1.5	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062770-008
Client Sample ID: EQBK-SCM-062717

Report Date: 07/31/17
Collection Date: 06/27/17 18:30
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.06	pCi/L	U			E903.0	07/18/17 14:12 / eli-ca
Radium 226 precision (±)	0.10	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 226 MDC	0.16	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 228	2.2	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 226 + Radium 228	2.3	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR
Lab ID: B17062770-009
Client Sample ID: EQBK-SCM-062817

Report Date: 07/31/17
Collection Date: 06/28/17 11:00
DateReceived: 06/29/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.09	pCi/L	U			E903.0	07/18/17 14:12 / eli-ca
Radium 226 precision (±)	0.11	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 226 MDC	0.16	pCi/L				E903.0	07/18/17 14:12 / eli-ca
Radium 228	1.2	pCi/L	U			RA-05	07/13/17 14:10 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	07/13/17 14:10 / eli-ca
Radium 226 + Radium 228	1.3	pCi/L	U			A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	07/24/17 16:15 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR

Report Date: 07/31/17
Work Order: B17062770

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8551
Lab ID: LCS-RA226-8551	Laboratory Control Sample				Run: G542M-2_170703A				07/18/17 12:24
Radium 226	8.5	pCi/L		84	80	120			
Lab ID: MB-RA226-8551	Method Blank				Run: G542M-2_170703A				07/18/17 12:24
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C17060927-001CMS	Sample Matrix Spike				Run: G542M-2_170703A				07/18/17 12:24
Radium 226	20	pCi/L		82	70	130			
Lab ID: C17060927-001CMSD	Sample Matrix Spike Duplicate				Run: G542M-2_170703A				07/18/17 12:24
Radium 226	20	pCi/L		86	70	130	4.8	20	
Method: E903.0									Batch: RA226-8558
Lab ID: LCS-RA226-8558	Laboratory Control Sample				Run: G542M-2_170712B				07/24/17 08:57
Radium 226	9.7	pCi/L		96	80	120			
Lab ID: MB-RA226-8558	Method Blank				Run: G542M-2_170712B				07/24/17 08:57
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C17060841-002DMS	Sample Matrix Spike				Run: G542M-2_170712B				07/24/17 08:58
Radium 226	21	pCi/L		103	70	130			
Lab ID: C17060841-002DMSD	Sample Matrix Spike Duplicate				Run: G542M-2_170712B				07/24/17 08:58
Radium 226	19	pCi/L		92	70	130	11	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA GC Mine CCR

Report Date: 07/31/17
Work Order: B17062770

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5535
Lab ID: LCS-228-RA226-8551	Laboratory Control Sample				Run: TENNELEC-3_170703A				07/13/17 12:24
Radium 228	9.5	pCi/L		89	80	120			
Lab ID: MB-RA226-8551	Method Blank				Run: TENNELEC-3_170703A				07/13/17 12:24
Radium 228	0.5	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: B17062770-010CMS	Sample Matrix Spike				Run: TENNELEC-3_170703A				07/13/17 12:24
Radium 228	29	pCi/L		102	70	130			
Lab ID: B17062770-010CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170703A				07/13/17 12:24
Radium 228	31	pCi/L		111	70	130	6.7	20	
Method: RA-05									Batch: RA228-5541
Lab ID: LCS-228-RA226-8558	Laboratory Control Sample				Run: TENNELEC-3_170712A				07/19/17 11:54
Radium 228	8.9	pCi/L		87	80	120			
Lab ID: MB-RA226-8558	Method Blank				Run: TENNELEC-3_170712A				07/19/17 11:54
Radium 228	0.2	pCi/L							U
Radium 228 precision (±)	0.6	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17060841-003DMS	Sample Matrix Spike				Run: TENNELEC-3_170712A				07/19/17 13:27
Radium 228	21	pCi/L		97	70	130			
Lab ID: C17060841-003DMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170712A				07/19/17 13:27
Radium 228	21	pCi/L		98	70	130	0.7	20	
Method: RA-05									Batch: RA228-5544R
Lab ID: LCS-228-RA226-8564	Laboratory Control Sample				Run: TENNELEC-3_170714C				07/27/17 11:41
Radium 228	9.8	pCi/L		95	80	120			
Lab ID: MB-RA226-8564	Method Blank				Run: TENNELEC-3_170714C				07/27/17 11:41
Radium 228	0.3	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17060746-002CMS	Sample Matrix Spike				Run: TENNELEC-3_170714C				07/27/17 11:41
Radium 228	18	pCi/L		80	70	130			
Lab ID: C17060746-002CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170714C				07/27/17 11:41
Radium 228	18	pCi/L		82	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17062770

Login completed by: Gina McCartney
Date Received: 6/29/2017
Reviewed by: BL2000\tedwards
Received by: rs4
Reviewed Date: 7/5/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 2.3°C, shipping container 2 was 2.1°C and shipping container 3 was 1.9°C.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information *(Billing Information)*

Company/Name	AMEC Foster Wheeler
Contact	Greg Seifert
Phone	512-241-2310
Mailing Address	3755 S Capital of Tx Hwy Ste 375
City, State, Zip	Austin, Tx, 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☐ Hard Copy ☑ Email
Receive Report	☐ Hard Copy ☑ Email
Purchase Order	
Quote	3997
Bottle Order	

Report Information *(If different than Account Information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other

Comments

Call Greg for any questions

MW-17 only has one out of two Radium Jugs

☆ If possible, use the full Jug only for MW-11 for Radium 226 + 228

Project Information

Project Name, PWSID, Permit, etc.	TMPA GC Mine CCR
Sampler Name	Samuel Macon
Sampler Phone	512-413-3816
Sample Origin State	Tx
EPA/State Compliance	☑ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

Analysis Requested

Schedule 1 + 2

Rad Chem analysis only on this work order 6-29-17 jm

See Attached

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	RUSH TAT	Lab ID
1	MNW-18	6-27-17	1415	4	W		B1706277 0 -001
2	MNW-17	6-27-17	1545	3			-002
3	MNW-16	6-27-17	1730	4			-003
4	AP MW-6	6-28-17	1030	4			-004
5	SFL MW-7	6-28-17	1250	4			-005
6	MNW-15	6-28-17	1340	4			-006
7	MNW-11	6-28-17	1450	4(3)			-007
8	EQBK-SCM-062717	6-27-17	1830	4			-008
9	EQBK-SCM-062817	6-28-17	1100	4			-009
10	Dup-1	6-27-17	—	4			-010

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Samuel C. Macon	6-28-17 1630	Samuel C. Macon			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	6/29/17 10:0	Signature

LABORATORY USE

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number *(cash/check only)*

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

EU-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

December 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17071798 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 10 samples for Texas Municipal Power Agency on 7/21/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17071798-001	MNW-18	07/19/17 12:15	07/21/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Solids, Total Dissolved
B17071798-005	EQBK/SCM/071917	07/19/17 17:00	07/21/17	Ground Water	Same As Above
B17071798-006	MNW-15	07/20/17 10:30	07/21/17	Ground Water	Same As Above
B17071798-007	SFL MW-7	07/20/17 11:45	07/21/17	Ground Water	Same As Above
B17071798-009	EQBK/SCM/072017	07/20/17 12:25	07/21/17	Ground Water	Same As Above
B17071798-010	Dup-1	07/19/17 0:00	07/21/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17071798

Revised Date: 12/21/17
Report Date: 08/09/17

CASE NARRATIVE

Revised Report 12/21/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071798-001
Client Sample ID: MNW-18

Revised Date: 12/21/17
Report Date: 08/09/17
Collection Date: 07/19/17 12:15
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	440	mg/L		1		E200.7	07/29/17 01:13 / slf
Magnesium	71	mg/L		1		E200.7	07/29/17 01:13 / slf
Potassium	37	mg/L		1		E200.7	07/28/17 04:57 / slf
Sodium	742	mg/L	D	4		E200.7	07/29/17 01:13 / slf
PHYSICAL PROPERTIES							
pH	7.0	s.u.	H	0.1		A4500-H B	07/21/17 14:46 / pjw
Solids, Total Dissolved TDS @ 180 C	4050	mg/L	D	40		A2540 C	07/21/17 15:28 / mnh
INORGANICS							
Chloride	544	mg/L	D	6		E300.0	07/28/17 03:54 / cjm
Sulfate	2150	mg/L	D	20		E300.0	07/28/17 03:54 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	07/24/17 09:33 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/26/17 06:04 / jpv
Arsenic	ND	mg/L		0.01		E200.8	07/26/17 06:04 / jpv
Barium	0.06	mg/L		0.01		E200.8	07/26/17 06:04 / jpv
Beryllium	ND	mg/L		0.001		E200.8	07/26/17 06:04 / jpv
Boron	0.44	mg/L		0.05		E200.8	07/26/17 06:04 / jpv
Cadmium	ND	mg/L		0.005		E200.8	07/26/17 06:04 / jpv
Chromium	ND	mg/L		0.01		E200.8	07/26/17 06:04 / jpv
Cobalt	ND	mg/L		0.02		E200.8	07/26/17 06:04 / jpv
Lead	ND	mg/L		0.01		E200.8	07/26/17 06:04 / jpv
Lithium	0.44	mg/L	D	0.04		E200.7	07/29/17 01:13 / slf
Mercury	ND	mg/L		0.001		E245.1	07/25/17 13:00 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/31/17 20:57 / rlh
Selenium	ND	mg/L		0.01		E200.8	07/26/17 06:04 / jpv
Thallium	ND	mg/L		0.002		E200.8	07/26/17 06:04 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071798-005
Client Sample ID: EQBK/SCM/071917

Revised Date: 12/21/17
Report Date: 08/09/17
Collection Date: 07/19/17 17:00
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	07/29/17 01:40 / slf
Magnesium	ND	mg/L		1		E200.7	07/29/17 01:40 / slf
Potassium	ND	mg/L		1		E200.7	07/28/17 05:25 / slf
Sodium	ND	mg/L		1		E200.7	07/29/17 01:40 / slf
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	07/21/17 14:57 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	07/21/17 15:30 / mnh
INORGANICS							
Chloride	ND	mg/L		1		E300.0	07/28/17 05:12 / cjm
Sulfate	ND	mg/L		1		E300.0	07/28/17 05:12 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	07/24/17 09:50 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/26/17 06:35 / jpv
Arsenic	ND	mg/L		0.01		E200.8	07/26/17 06:35 / jpv
Barium	ND	mg/L		0.01		E200.8	07/26/17 06:35 / jpv
Beryllium	ND	mg/L		0.001		E200.8	07/26/17 06:35 / jpv
Boron	ND	mg/L		0.05		E200.8	07/26/17 06:35 / jpv
Cadmium	ND	mg/L		0.005		E200.8	07/26/17 06:35 / jpv
Chromium	ND	mg/L		0.01		E200.8	07/26/17 06:35 / jpv
Cobalt	ND	mg/L		0.02		E200.8	07/26/17 06:35 / jpv
Lead	ND	mg/L		0.01		E200.8	07/26/17 06:35 / jpv
Lithium	ND	mg/L		0.01		E200.7	07/29/17 01:40 / slf
Mercury	ND	mg/L		0.001		E245.1	07/25/17 13:07 / jh
Molybdenum	ND	mg/L		0.05		E200.7	07/29/17 01:40 / slf
Selenium	ND	mg/L		0.01		E200.8	07/26/17 06:35 / jpv
Thallium	ND	mg/L		0.002		E200.8	07/26/17 06:35 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071798-006
Client Sample ID: MNW-15

Revised Date: 12/21/17
Report Date: 08/09/17
Collection Date: 07/20/17 10:30
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	275	mg/L		1		E200.7	07/29/17 01:44 / slf
Magnesium	53	mg/L		1		E200.7	07/29/17 01:44 / slf
Potassium	27	mg/L		1		E200.7	07/28/17 05:29 / slf
Sodium	446	mg/L	D	2		E200.7	07/29/17 01:44 / slf
PHYSICAL PROPERTIES							
pH	3.7	s.u.	H	0.1		A4500-H B	07/21/17 15:00 / pjw
Solids, Total Dissolved TDS @ 180 C	2690	mg/L	D	40		A2540 C	07/21/17 15:30 / mnh
INORGANICS							
Chloride	704	mg/L	D	3		E300.0	07/28/17 05:31 / cjm
Sulfate	1240	mg/L	D	9		E300.0	07/28/17 05:31 / cjm
Fluoride	0.5	mg/L		0.1		A4500-F C	07/24/17 09:57 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/26/17 06:38 / jpv
Arsenic	ND	mg/L		0.01		E200.8	07/26/17 06:38 / jpv
Barium	0.02	mg/L		0.01		E200.8	07/26/17 06:38 / jpv
Beryllium	0.068	mg/L		0.001		E200.8	07/26/17 06:38 / jpv
Boron	9.38	mg/L		0.05		E200.7	07/29/17 01:44 / slf
Cadmium	0.091	mg/L		0.005		E200.8	07/26/17 06:38 / jpv
Chromium	ND	mg/L		0.01		E200.8	07/26/17 06:38 / jpv
Cobalt	0.30	mg/L		0.02		E200.8	07/26/17 06:38 / jpv
Lead	ND	mg/L		0.01		E200.8	07/26/17 06:38 / jpv
Lithium	0.06	mg/L	D	0.02		E200.7	07/29/17 01:44 / slf
Mercury	ND	mg/L		0.001		E245.1	07/25/17 13:09 / jh
Molybdenum	ND	mg/L		0.05		E200.7	07/29/17 01:44 / slf
Selenium	ND	mg/L		0.01		E200.8	08/09/17 12:35 / jpv
Thallium	ND	mg/L		0.002		E200.8	07/26/17 06:38 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071798-007
Client Sample ID: SFL MW-7

Revised Date: 12/21/17
Report Date: 08/09/17
Collection Date: 07/20/17 11:45
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	664	mg/L		1		E200.7	07/29/17 01:54 / slf
Magnesium	104	mg/L		1		E200.7	07/29/17 01:54 / slf
Potassium	47	mg/L		1		E200.7	07/28/17 05:39 / slf
Sodium	1270	mg/L	D	4		E200.7	07/29/17 01:54 / slf
PHYSICAL PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	07/21/17 15:05 / pjw
Solids, Total Dissolved TDS @ 180 C	6640	mg/L	D	100		A2540 C	07/21/17 15:30 / mnh
INORGANICS							
Chloride	2780	mg/L	D	6		E300.0	07/28/17 05:50 / cjm
Sulfate	770	mg/L	D	20		E300.0	07/28/17 05:50 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	07/24/17 10:00 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/26/17 06:40 / jpv
Arsenic	ND	mg/L		0.01		E200.8	07/26/17 06:40 / jpv
Barium	0.04	mg/L		0.01		E200.8	07/26/17 06:40 / jpv
Beryllium	ND	mg/L		0.001		E200.8	07/26/17 06:40 / jpv
Boron	0.83	mg/L		0.05		E200.7	07/29/17 01:54 / slf
Cadmium	ND	mg/L		0.005		E200.8	07/26/17 06:40 / jpv
Chromium	ND	mg/L		0.01		E200.8	07/26/17 06:40 / jpv
Cobalt	ND	mg/L		0.02		E200.8	07/26/17 06:40 / jpv
Lead	ND	mg/L		0.01		E200.8	07/26/17 06:40 / jpv
Lithium	0.43	mg/L	D	0.04		E200.7	07/29/17 01:54 / slf
Mercury	ND	mg/L		0.001		E245.1	07/25/17 13:11 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/31/17 21:37 / rlh
Selenium	ND	mg/L		0.01		E200.8	07/31/17 21:37 / rlh
Thallium	ND	mg/L		0.002		E200.8	07/26/17 06:40 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071798-009
Client Sample ID: EQBK/SCM/072017

Revised Date: 12/21/17
Report Date: 08/09/17
Collection Date: 07/20/17 12:25
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	07/29/17 02:01 / slf
Magnesium	ND	mg/L		1		E200.7	07/29/17 02:01 / slf
Potassium	ND	mg/L		1		E200.7	07/28/17 05:46 / slf
Sodium	ND	mg/L		1		E200.7	07/29/17 02:01 / slf
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	07/21/17 15:10 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	07/21/17 15:31 / mnh
INORGANICS							
Chloride	ND	mg/L		1		E300.0	07/28/17 07:08 / cjm
Sulfate	ND	mg/L		1		E300.0	07/28/17 07:08 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	07/24/17 10:13 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/26/17 06:46 / jpv
Arsenic	ND	mg/L		0.01		E200.8	07/26/17 06:46 / jpv
Barium	ND	mg/L		0.01		E200.8	07/26/17 06:46 / jpv
Beryllium	ND	mg/L		0.001		E200.8	07/26/17 06:46 / jpv
Boron	ND	mg/L		0.05		E200.8	07/26/17 06:46 / jpv
Cadmium	ND	mg/L		0.005		E200.8	07/26/17 06:46 / jpv
Chromium	ND	mg/L		0.01		E200.8	07/26/17 06:46 / jpv
Cobalt	ND	mg/L		0.02		E200.8	07/26/17 06:46 / jpv
Lead	ND	mg/L		0.01		E200.8	07/26/17 06:46 / jpv
Lithium	ND	mg/L		0.01		E200.7	07/29/17 02:01 / slf
Mercury	ND	mg/L		0.001		E245.1	07/27/17 12:04 / jh
Molybdenum	ND	mg/L		0.05		E200.7	07/29/17 02:01 / slf
Selenium	ND	mg/L		0.01		E200.8	07/26/17 06:46 / jpv
Thallium	ND	mg/L		0.002		E200.8	07/26/17 06:46 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071798-010
Client Sample ID: Dup-1

Revised Date: 12/21/17
Report Date: 08/09/17
Collection Date: 07/19/17
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	443	mg/L		1		E200.7	07/29/17 02:05 / slf
Magnesium	71	mg/L		1		E200.7	07/29/17 02:05 / slf
Potassium	40	mg/L		1		E200.7	07/28/17 05:50 / slf
Sodium	743	mg/L	D	4		E200.7	07/29/17 02:05 / slf
PHYSICAL PROPERTIES							
pH	7.0	s.u.	H	0.1		A4500-H B	07/21/17 15:12 / pjw
Solids, Total Dissolved TDS @ 180 C	4020	mg/L	D	40		A2540 C	07/21/17 15:31 / mnh
INORGANICS							
Chloride	534	mg/L	D	6		E300.0	07/28/17 08:26 / cjm
Sulfate	2100	mg/L	D	20		E300.0	07/28/17 08:26 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	07/24/17 10:28 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	07/26/17 06:48 / jpv
Arsenic	ND	mg/L		0.01		E200.8	07/26/17 06:48 / jpv
Barium	0.06	mg/L		0.01		E200.8	07/26/17 06:48 / jpv
Beryllium	ND	mg/L		0.001		E200.8	07/26/17 06:48 / jpv
Boron	0.49	mg/L		0.05		E200.8	07/26/17 06:48 / jpv
Cadmium	ND	mg/L		0.005		E200.8	07/26/17 06:48 / jpv
Chromium	ND	mg/L		0.01		E200.8	07/26/17 06:48 / jpv
Cobalt	ND	mg/L		0.02		E200.8	07/26/17 06:48 / jpv
Lead	ND	mg/L		0.01		E200.8	07/26/17 06:48 / jpv
Lithium	0.44	mg/L	D	0.04		E200.7	07/29/17 02:05 / slf
Mercury	ND	mg/L		0.001		E245.1	07/27/17 12:06 / jh
Molybdenum	ND	mg/L		0.05		E200.8	07/31/17 21:44 / rlh
Selenium	ND	mg/L		0.01		E200.8	07/26/17 06:48 / jpv
Thallium	ND	mg/L		0.002		E200.8	07/26/17 06:48 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 08/03/17
Project: CCRR
Work Order: B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 111818
Lab ID: MB-111818		Method Blank				Run: BAL #SD-15_170721D				07/21/17 15:26
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-111818		Laboratory Control Sample				Run: BAL #SD-15_170721D				07/21/17 15:26
Solids, Total Dissolved TDS @ 180 C		970	mg/L	10	97	90	110			
Lab ID: B17071798-001A DUP		Sample Duplicate				Run: BAL #SD-15_170721D				07/21/17 15:29
Solids, Total Dissolved TDS @ 180 C		4060	mg/L	40				0.1	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 08/03/17
Project: CCRR
Work Order: B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170724A	
Lab ID: **ICV**		Initial Calibration Verification Standard							07/24/17 09:20	
Fluoride		1.02	mg/L	0.10	102	90	110			
Method: **A4500-F C**									Batch: R283639	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170724A			07/24/17 09:17	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170724A			07/24/17 09:23	
Fluoride		1.00	mg/L	0.10	100	90	110			
Lab ID: **B17071782-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170724A			07/24/17 09:28	
Fluoride		1.43	mg/L	0.10	100	80	120			
Lab ID: **B17071782-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170724A			07/24/17 09:30	
Fluoride		1.48	mg/L	0.10	105	80	120	3.4	10	
Lab ID: **B17071798-010AMS**		Sample Matrix Spike				Run: MAN-TECH_170724A			07/24/17 10:31	
Fluoride		1.11	mg/L	0.10	97	80	120			
Lab ID: **B17071798-010AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170724A			07/24/17 10:33	
Fluoride		1.12	mg/L	0.10	98	80	120	0.9	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 08/03/17
Project: CCRR
Work Order: B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170721A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								07/21/17 08:16	
pH		7.98	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R283525	
Lab ID: **B17071798-006ADUP**	Sample Duplicate					Run: PHSC _101-B_170721A			07/21/17 15:02	
pH		3.66	s.u.	0.10				0.3	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 08/03/17
Project: CCRR
Work Order: B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC METROHM 2_170727A	
Lab ID: **ICV**	2	Initial Calibration Verification Standard							07/27/17 11:39	
Chloride		2.15	mg/L	1.0	96	90	110			
Sulfate		8.86	mg/L	1.0	98	90	110			
Method: **E300.0**									Batch: R283970	
Lab ID: **ICB**	2	Method Blank				Run: IC METROHM 2_170727A			07/27/17 11:58	
Chloride		ND	mg/L	0.03						
Sulfate		ND	mg/L	0.02						
Lab ID: **LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_170727A			07/27/17 12:18	
Chloride		10.2	mg/L	1.0	102	90	110			
Sulfate		30.4	mg/L	1.0	101	90	110			
Lab ID: **B17071779-012AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170727A			07/28/17 02:55	
Chloride		544	mg/L	3.1	107	90	110			
Sulfate		3280	mg/L	9.2	98	90	110			
Lab ID: **B17071779-012AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170727A			07/28/17 03:15	
Chloride		543	mg/L	3.1	107	90	110	0.2	20	
Sulfate		3280	mg/L	9.2	98	90	110	0.0	20	
Lab ID: **B17071798-009AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170727A			07/28/17 07:28	
Chloride		10.9	mg/L	1.0	109	90	110			
Sulfate		32.7	mg/L	1.0	109	90	110			
Lab ID: **B17071798-009AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170727A			07/28/17 07:47	
Chloride		11.0	mg/L	1.0	110	90	110	0.5	20	
Sulfate		32.8	mg/L	1.0	109	90	110	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 08/09/17

Project: CCRR **Work Order:** B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170727A	
Lab ID: **ICV**		Continuing Calibration Verification Standard							07/27/17 09:08	
Potassium		25.4	mg/L	1.0	102	95	105			
Method: **E200.7**									Batch: 111833	
Lab ID: **MB-111833**	7	Method Blank				Run: ICP203-B_170727A			07/28/17 04:19	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: **LCS-111833**	7	Laboratory Control Sample				Run: ICP203-B_170727A			07/28/17 04:22	
Boron		0.528	mg/L	0.10	106	85	115			
Calcium		28.4	mg/L	1.0	113	85	115			
Lithium		0.558	mg/L	0.10	112	85	115			
Magnesium		28.3	mg/L	1.0	113	85	115			
Molybdenum		0.523	mg/L	0.10	105	85	115			
Potassium		27.8	mg/L	1.0	111	85	115			
Sodium		27.6	mg/L	1.0	110	85	115			
Lab ID: **B17071798-001BMS3**	7	Sample Matrix Spike				Run: ICP203-B_170727A			07/28/17 05:07	
Boron		0.983	mg/L	0.050	105	70	130			
Calcium		470	mg/L	1.0		70	130			A
Lithium		0.989	mg/L	0.10	108	70	130			
Magnesium		100.0	mg/L	1.0	117	70	130			
Molybdenum		0.527	mg/L	0.071	105	70	130			
Potassium		62.3	mg/L	1.0	103	70	130			
Sodium		797	mg/L	4.2		70	130			A
Lab ID: **B17071798-001BMSD**	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170727A			07/28/17 05:11	
Boron		1.04	mg/L	0.050	117	70	130	5.9	20	
Calcium		477	mg/L	1.0		70	130	1.5	20	A
Lithium		1.02	mg/L	0.10	114	70	130	3.2	20	
Magnesium		101	mg/L	1.0	123	70	130	1.4	20	
Molybdenum		0.529	mg/L	0.071	106	70	130	0.4	20	
Potassium		64.4	mg/L	1.0	111	70	130	3.3	20	
Sodium		812	mg/L	4.2		70	130	1.8	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 08/09/17

Project: CCRR **Work Order:** B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170728A	
Lab ID: **ICV**	7	Continuing Calibration Verification Standard							07/28/17 09:30	
Boron		2.49	mg/L	0.10	100	95	105			
Calcium		24.8	mg/L	1.0	99	95	105			
Lithium		1.24	mg/L	0.10	99	95	105			
Magnesium		24.5	mg/L	1.0	98	95	105			
Molybdenum		2.50	mg/L	0.10	100	95	105			
Potassium		24.8	mg/L	1.0	99	95	105			
Sodium		24.8	mg/L	1.0	99	95	105			
Method: **E200.7**									Batch: 111833	
Lab ID: **MB-111833**	7	Method Blank				Run: ICP203-B_170728A			07/29/17 00:34	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		0.02	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		0.07	mg/L	0.03						
Lab ID: **LCS-111833**	7	Laboratory Control Sample				Run: ICP203-B_170728A			07/29/17 00:38	
Boron		0.503	mg/L	0.10	101	85	115			
Calcium		27.2	mg/L	1.0	109	85	115			
Lithium		0.538	mg/L	0.10	108	85	115			
Magnesium		27.3	mg/L	1.0	109	85	115			
Molybdenum		0.506	mg/L	0.10	101	85	115			
Potassium		27.1	mg/L	1.0	108	85	115			
Sodium		26.7	mg/L	1.0	107	85	115			
Lab ID: **B17071798-001BMS3**	7	Sample Matrix Spike				Run: ICP203-B_170728A			07/29/17 01:23	
Boron		1.03	mg/L	0.050	113	70	130			
Calcium		481	mg/L	1.0		70	130			A
Lithium		1.01	mg/L	0.10	114	70	130			
Magnesium		101	mg/L	1.0	123	70	130			
Molybdenum		0.526	mg/L	0.071	105	70	130			
Potassium		66.0	mg/L	1.0	118	70	130			
Sodium		793	mg/L	4.2		70	130			A
Lab ID: **B17071798-001BMSD**	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170728A			07/29/17 01:26	
Boron		1.04	mg/L	0.050	115	70	130	1.1	20	
Calcium		485	mg/L	1.0		70	130	0.8	20	A
Lithium		1.03	mg/L	0.10	119	70	130	2.6	20	
Magnesium		101	mg/L	1.0	121	70	130	0.4	20	
Molybdenum		0.518	mg/L	0.071	104	70	130	1.5	20	
Potassium		66.2	mg/L	1.0	119	70	130	0.3	20	
Sodium		805	mg/L	4.2		70	130	1.6	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 08/09/17

Project: CCRR **Work Order:** B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS202-B_170725A	
Lab ID: QCS	11	Initial Calibration Verification Standard							07/26/17 05:40	
Antimony		0.0492	mg/L	0.050	98	90	110			
Arsenic		0.0484	mg/L	0.0050	97	90	110			
Barium		0.0483	mg/L	0.10	97	90	110			
Beryllium		0.0253	mg/L	0.0010	101	90	110			
Boron		0.0524	mg/L	0.10	105	90	110			
Cadmium		0.0257	mg/L	0.0010	103	90	110			
Chromium		0.0529	mg/L	0.010	106	90	110			
Cobalt		0.0513	mg/L	0.010	103	90	110			
Lead		0.0494	mg/L	0.010	99	90	110			
Selenium		0.0486	mg/L	0.0050	97	90	110			
Thallium		0.0488	mg/L	0.10	98	90	110			
Method: E200.8									Batch: 111833	
Lab ID: MB-111833	12	Method Blank				Run: ICPMS202-B_170725A			07/26/17 06:01	
Antimony		ND	mg/L	0.00004						
Arsenic		0.0002	mg/L	0.00006						
Barium		ND	mg/L	0.00004						
Beryllium		ND	mg/L	0.00002						
Boron		ND	mg/L	0.002						
Cadmium		ND	mg/L	0.00002						
Chromium		0.0003	mg/L	0.00009						
Cobalt		ND	mg/L	0.00003						
Lead		0.0001	mg/L	0.00005						
Molybdenum		0.0008	mg/L	0.00005						
Selenium		0.0005	mg/L	0.0002						
Thallium		ND	mg/L	0.0001						
Lab ID: LCS-111833	12	Laboratory Control Sample				Run: ICPMS202-B_170725A			07/26/17 06:06	
Antimony		0.541	mg/L	0.0010	108	85	115			
Arsenic		0.561	mg/L	0.0010	112	85	115			
Barium		0.549	mg/L	0.050	110	85	115			
Beryllium		0.272	mg/L	0.0010	109	85	115			
Boron		0.534	mg/L	0.050	107	85	115			
Cadmium		0.278	mg/L	0.0010	111	85	115			
Chromium		0.526	mg/L	0.0050	105	85	115			
Cobalt		0.540	mg/L	0.0050	108	85	115			
Lead		0.550	mg/L	0.0010	110	85	115			
Molybdenum		0.530	mg/L	0.0010	106	85	115			
Selenium		0.559	mg/L	0.0010	112	85	115			
Thallium		0.516	mg/L	0.00050	103	85	115			
Lab ID: B17071798-001BMS3	12	Sample Matrix Spike				Run: ICPMS202-B_170725A			07/26/17 06:09	
Antimony		0.539	mg/L	0.0010	108	70	130			
Arsenic		0.570	mg/L	0.0010	114	70	130			
Barium		0.615	mg/L	0.050	111	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 08/09/17

Project: CCRR **Work Order:** B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 111833
Lab ID: B17071798-001BMS3	12	Sample Matrix Spike				Run: ICPMS202-B_170725A				07/26/17 06:09
Beryllium		0.265	mg/L	0.0010	106	70	130			
Boron		1.01	mg/L	0.050	113	70	130			
Cadmium		0.268	mg/L	0.0010	107	70	130			
Chromium		0.518	mg/L	0.0050	103	70	130			
Cobalt		0.541	mg/L	0.0050	108	70	130			
Lead		0.546	mg/L	0.0010	108	70	130			
Molybdenum		0.546	mg/L	0.0010	109	70	130			
Selenium		0.578	mg/L	0.0011	114	70	130			
Thallium		0.459	mg/L	0.00071	92	70	130			
Lab ID: B17071798-001BMSD	12	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170725A				07/26/17 06:11
Antimony		0.541	mg/L	0.0010	108	70	130	0.5	20	
Arsenic		0.570	mg/L	0.0010	114	70	130	0.1	20	
Barium		0.593	mg/L	0.050	106	70	130	3.6	20	
Beryllium		0.274	mg/L	0.0010	109	70	130	3.2	20	
Boron		1.04	mg/L	0.050	119	70	130	3.2	20	
Cadmium		0.268	mg/L	0.0010	107	70	130	0.1	20	
Chromium		0.520	mg/L	0.0050	103	70	130	0.6	20	
Cobalt		0.544	mg/L	0.0050	109	70	130	0.5	20	
Lead		0.550	mg/L	0.0010	108	70	130	0.5	20	
Molybdenum		0.543	mg/L	0.0010	108	70	130	0.6	20	
Selenium		0.565	mg/L	0.0011	112	70	130	2.4	20	
Thallium		0.448	mg/L	0.00071	90	70	130	2.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 08/09/17

Project: CCRR **Work Order:** B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170801A	
Lab ID: QCS	2	Initial Calibration Verification Standard							07/31/17 16:36	
Molybdenum		0.0474	mg/L	0.0050	95	90	110			
Selenium		0.0517	mg/L	0.0050	103	90	110			
Method: E200.8									Batch: 111833	
Lab ID: MB-111833	12	Method Blank				Run: ICPMS206-B_170801A			07/31/17 20:53	
Antimony		0.0001	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Boron		ND	mg/L	0.003						
Cadmium		0.00005	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		0.00002	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		0.00005	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.0001	mg/L	7E-06						
Lab ID: LCS-111833	12	Laboratory Control Sample				Run: ICPMS206-B_170801A			07/31/17 21:00	
Antimony		0.512	mg/L	0.0050	102	85	115			
Arsenic		0.544	mg/L	0.0010	109	85	115			
Barium		0.495	mg/L	0.010	99	85	115			
Beryllium		0.229	mg/L	0.0010	92	85	115			
Boron		0.474	mg/L	0.10	95	85	115			
Cadmium		0.275	mg/L	0.0010	110	85	115			
Chromium		0.531	mg/L	0.0010	106	85	115			
Cobalt		0.490	mg/L	0.0010	98	85	115			
Lead		0.506	mg/L	0.0010	101	85	115			
Molybdenum		0.477	mg/L	0.0050	95	85	115			
Selenium		0.537	mg/L	0.0050	107	85	115			
Thallium		0.522	mg/L	0.0010	104	85	115			
Lab ID: B17071798-001BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_170801A			07/31/17 21:03	
Antimony		0.508	mg/L	0.0010	102	70	130			
Arsenic		0.532	mg/L	0.0010	106	70	130			
Barium		0.553	mg/L	0.050	99	70	130			
Beryllium		0.222	mg/L	0.0010	89	70	130			
Boron		0.899	mg/L	0.050	97	70	130			
Cadmium		0.253	mg/L	0.0010	101	70	130			
Chromium		0.536	mg/L	0.0050	107	70	130			
Cobalt		0.496	mg/L	0.0050	99	70	130			
Lead		0.506	mg/L	0.0010	100	70	130			
Molybdenum		0.476	mg/L	0.0010	95	70	130			
Selenium		0.541	mg/L	0.0010	108	70	130			
Thallium		0.490	mg/L	0.00050	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 08/09/17

Project: CCRR **Work Order:** B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 111833
Lab ID: **B17071798-001BMS3**	12	Sample Matrix Spike				Run: ICPMS206-B_170801A				07/31/17 21:03
Lab ID: **B17071798-001BMSD**	12	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170801A				07/31/17 21:17
Antimony		0.544	mg/L	0.0010	109	70	130	6.8	20	
Arsenic		0.565	mg/L	0.0010	113	70	130	6.1	20	
Barium		0.607	mg/L	0.050	109	70	130	9.4	20	
Beryllium		0.226	mg/L	0.0010	90	70	130	1.7	20	
Boron		0.873	mg/L	0.050	92	70	130	3.0	20	
Cadmium		0.263	mg/L	0.0010	105	70	130	4.0	20	
Chromium		0.547	mg/L	0.0050	109	70	130	2.1	20	
Cobalt		0.516	mg/L	0.0050	103	70	130	4.0	20	
Lead		0.517	mg/L	0.0010	102	70	130	2.2	20	
Molybdenum		0.510	mg/L	0.0010	102	70	130	7.0	20	
Selenium		0.552	mg/L	0.0010	110	70	130	2.2	20	
Thallium		0.496	mg/L	0.00050	99	70	130	1.2	20	
Method: **E200.8**										Analytical Run: ICPMS206-B_170808A
Lab ID: **QCS**		Initial Calibration Verification Standard								08/09/17 06:07
Selenium		0.0504	mg/L	0.0050	101	90	110			
Method: **E200.8**										Batch: 111833
Lab ID: **MB-111833**	12	Method Blank				Run: ICPMS206-B_170808A				08/09/17 12:25
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	7E-06						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 08/09/17

Project: CCRR **Work Order:** B17071798

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170725A	
Lab ID: **ICV**		Initial Calibration Verification Standard							07/25/17 09:54	
Mercury		0.00198	mg/L	0.00010	99	90	110			
Method: **E245.1**									Batch: 111889	
Lab ID: **MB-111889**		Method Blank				Run: HGCV202-B_170725A			07/25/17 12:26	
Mercury		0.00002	mg/L	6E-06						
Lab ID: **LCS-111889**		Laboratory Control Sample				Run: HGCV202-B_170725A			07/25/17 12:28	
Mercury		0.00207	mg/L	0.00010	103	85	115			
Lab ID: **B17071798-008BMS**		Sample Matrix Spike				Run: HGCV202-B_170725A			07/25/17 13:15	
Mercury		0.00196	mg/L	0.00010	97	70	130			
Lab ID: **B17071798-008BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170725A			07/25/17 13:17	
Mercury		0.00198	mg/L	0.00010	98	70	130	0.8	30	
Method: **E245.1**									Batch: 111952	
Lab ID: **MB-111952**		Method Blank				Run: HGCV202-B_170727A			07/27/17 11:57	
Mercury		ND	mg/L	6E-06						
Lab ID: **LCS-111952**		Laboratory Control Sample				Run: HGCV202-B_170727A			07/27/17 11:59	
Mercury		0.00196	mg/L	0.00010	98	85	115			
Lab ID: **B17072043-001CMS**		Sample Matrix Spike				Run: HGCV202-B_170727A			07/27/17 12:23	
Mercury		0.00198	mg/L	0.00010	99	70	130			
Lab ID: **B17072043-001CMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170727A			07/27/17 12:25	
Mercury		0.00193	mg/L	0.00010	96	70	130	2.5	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency B17071798

Login completed by: Gina McCartney
Date Received: 7/21/2017
Reviewed by: BL2000\cindy
Received by: rs4
Reviewed Date: 7/24/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 4.7°C melted ice, shipping container 2 was 5.2°C on ice and shipping container 3 was 0.7°C on ice.

ENERGY
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page 1 of 1

Account Information (Billing information)

Company/Name	AMEC Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of Tx. Hw #375
City, State, Zip	Austin, Tx, 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other ______

Comments

Only enough water for 3 out of 4 containers on MNW-17

All Analysis except RadChem on the ~~[illegible]~~ workorder 7-21-17

Project Information

Project Name, PWSID, Permit, etc.	Client: Texas Municipal Power Agency Proj: CCRR
Sampler Name	Samuel Macon
Sampler Phone	512-413-3876
Sample Origin State	Tx
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

#	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MNW-18	7-19-17	1215	4	W	↓	↓			B17071798-001
2	MNW-17	↓	1330	3	↓	↓	↓			-002
3	MNW-16	↓	1510	4	↓	↓	↓			-003
4	MNW-11	↓	1615	4	↓	↓	↓			-004
5	EQBK/SCM/071917	↓	1700	4	↓	↓	↓			-005
6	MNW-15	7-20-17	1030	4	↓	↓	↓			-006
7	SFL MW-7	↓	1145	4	↓	↓	↓			-007
8	AP MW-6	↓	1305	4	↓	↓	↓			-008
9	EQBK/SCM/072017	↓	1225	4	↓	↓	↓			-009
10	Dup-1	7-19-17	-	4	↓	↓	↓			-010

Custody Record MUST be signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Samuel C. Macon	7-20-17 @ 1430	Samuel C. M			
Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time 7/21/17 10:00	Signature [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check ______	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

August 16, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17071805 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 10 samples for Texas Municipal Power Agency on 7/21/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17071805-001	MNW-18	07/19/17 12:15	07/21/17	Ground Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
B17071805-005	EQBK/SCM/071917	07/19/17 17:00	07/21/17	Ground Water	Same As Above
B17071805-006	MNW-15	07/20/17 10:30	07/21/17	Ground Water	Same As Above
B17071805-007	SFL MW-7	07/20/17 11:45	07/21/17	Ground Water	Same As Above
B17071805-009	EQBK/SCM/072017	07/20/17 12:25	07/21/17	Ground Water	Same As Above
B17071805-010	Dup-1	07/19/17 0:00	07/21/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17071805

Report Date: 08/16/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071805-001
Client Sample ID: MNW-18

Report Date: 08/16/17
Collection Date: 07/19/17 12:15
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	2.0	pCi/L				E903.0	08/09/17 08:12 / eli-ca
Radium 226 precision (±)	0.45	pCi/L				E903.0	08/09/17 08:12 / eli-ca
Radium 226 MDC	0.13	pCi/L				E903.0	08/09/17 08:12 / eli-ca
Radium 228	3.1	pCi/L				RA-05	08/02/17 14:30 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	08/02/17 14:30 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	08/02/17 14:30 / eli-ca
Radium 226 + Radium 228	5.1	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071805-005
Client Sample ID: EQBK/SCM/071917

Report Date: 08/16/17
Collection Date: 07/19/17 17:00
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.12	pCi/L	U			E903.0	08/07/17 14:17 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	08/07/17 14:17 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	08/07/17 14:17 / eli-ca
Radium 228	-0.3	pCi/L	U			RA-05	08/02/17 12:51 / eli-ca
Radium 228 precision (±)	0.78	pCi/L				RA-05	08/02/17 12:51 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	08/02/17 12:51 / eli-ca
Radium 226 + Radium 228	-0.2	pCi/L	U			A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071805-006
Client Sample ID: MNW-15

Report Date: 08/16/17
Collection Date: 07/20/17 10:30
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.42	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 228	0.34	pCi/L	U			RA-05	08/02/17 16:12 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	08/02/17 16:12 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	08/02/17 16:12 / eli-ca
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071805-007
Client Sample ID: SFL MW-7

Report Date: 08/16/17
Collection Date: 07/20/17 11:45
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.3	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 226 precision (±)	0.34	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 228	1.4	pCi/L	U			RA-05	08/02/17 16:12 / eli-ca
Radium 228 precision (±)	0.91	pCi/L				RA-05	08/02/17 16:12 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	08/02/17 16:12 / eli-ca
Radium 226 + Radium 228	2.6	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071805-009
Client Sample ID: EQBK/SCM/072017

Report Date: 08/16/17
Collection Date: 07/20/17 12:25
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.13	pCi/L	U			E903.0	08/07/17 13:13 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 228	0.55	pCi/L	U			RA-05	08/02/17 16:11 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	08/02/17 16:11 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	08/02/17 16:11 / eli-ca
Radium 226 + Radium 228	0.7	pCi/L	U			A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17071805-010
Client Sample ID: Dup-1

Report Date: 08/16/17
Collection Date: 07/19/17
DateReceived: 07/21/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	2.8	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 226 precision (±)	0.63	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	08/07/17 13:13 / eli-ca
Radium 228	1.4	pCi/L	U			RA-05	08/02/17 16:11 / eli-ca
Radium 228 precision (±)	0.94	pCi/L				RA-05	08/02/17 16:11 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	08/02/17 16:11 / eli-ca
Radium 226 + Radium 228	4.1	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca
Radium 226 + Radium 228 MDC	2.1	pCi/L				A7500-RA	08/09/17 13:32 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 08/15/17
Work Order: B17071805

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8575
Lab ID: LCS-RA226-8575	Laboratory Control Sample				Run: G542M_170727A				08/07/17 12:15
Radium 226	11	pCi/L		103	80	120			
Lab ID: MB-RA226-8575	Method Blank				Run: G542M_170727A				08/07/17 12:15
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Method: E903.0									Batch: RA226-8576
Lab ID: LCS-RA226-8576	Laboratory Control Sample				Run: G542M-2_170727A				08/07/17 13:13
Radium 226	7.8	pCi/L		77	80	120			S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, and MSD are acceptable the batch is approved.									
Lab ID: MB-RA226-8576	Method Blank				Run: G542M-2_170727A				08/07/17 13:13
Radium 226	0.07	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17071805-010AMS	Sample Matrix Spike				Run: G542M-2_170727A				08/07/17 13:13
Radium 226	18	pCi/L		79	70	130			
Lab ID: B17071805-010AMSD	Sample Matrix Spike Duplicate				Run: G542M-2_170727A				08/07/17 13:13
Radium 226	18	pCi/L		79	70	130	0.1	20	
Method: E903.0									Batch: RA226-8575
Lab ID: MB-RA226-8575	Method Blank				Run: TENNELEC-3_170727C				08/09/17 08:12
Radium 226	0.3	pCi/L							
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.1	pCi/L							
Lab ID: B17071805-001AMS	Sample Matrix Spike				Run: TENNELEC-3_170727C				08/09/17 08:12
Radium 226	14	pCi/L		61	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the original LCS and the RER are acceptable, the response is considered to be matrix related. The batch is approved.									
Lab ID: B17071805-001AMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170727C				08/09/17 08:12
Radium 226	19	pCi/L		82	70	130	26	20	R
- For all R qualified analytes the RERs are less than the limit of 2.0. This batch is approved.									

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
S - Spike recovery outside of advisory limits.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 08/15/17
Work Order: B17071805

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5551
Lab ID: LCS-228-RA226-8575	Laboratory Control Sample				Run: TENNELEC-3_170727A				08/02/17 12:51
Radium 228	9.2	pCi/L		89	80	120			
Lab ID: MB-RA226-8575	Method Blank				Run: TENNELEC-3_170727A				08/02/17 12:51
Radium 228	0.4	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: B17071805-005AMS	Sample Matrix Spike				Run: TENNELEC-3_170727A				08/02/17 12:51
Radium 228	20	pCi/L		102	70	130			
Lab ID: B17071805-005AMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170727A				08/02/17 12:51
Radium 228	18	pCi/L		94	70	130	8.2	20	
Method: RA-05									Batch: RA228-5552
Lab ID: LCS-228-RA226-8576	Laboratory Control Sample				Run: TENNELEC-3_170727B				08/02/17 16:11
Radium 228	10	pCi/L		109	80	120			
Lab ID: MB-RA226-8576	Method Blank				Run: TENNELEC-3_170727B				08/02/17 16:11
Radium 228	-0.7	pCi/L							U
Radium 228 precision (±)	1	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: C17070175-001CMS	Sample Matrix Spike				Run: TENNELEC-3_170727B				08/02/17 16:11
Radium 228	19	pCi/L		89	70	130			
Lab ID: C17070175-001CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170727B				08/02/17 16:11
Radium 228	19	pCi/L		91	70	130	1.1	20	
Method: RA-05									Batch: RA228-5561
Lab ID: LCS-228-RA226-8588	Laboratory Control Sample				Run: TENNELEC-3_170808C				08/14/17 15:32
Radium 228	10	pCi/L		101	80	120			
Lab ID: MB-RA226-8588	Method Blank				Run: TENNELEC-3_170808C				08/14/17 15:32
Radium 228	0.3	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17080003-004CMS	Sample Matrix Spike				Run: TENNELEC-3_170808C				08/14/17 15:32
Radium 228	19	pCi/L		83	70	130			
Lab ID: C17080003-004CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170808C				08/14/17 15:32
Radium 228	19	pCi/L		86	70	130	4.8	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17071805

Login completed by: Gina McCartney
Date Received: 7/21/2017
Reviewed by: BL2000\cindy
Received by: rs4
Reviewed Date: 7/24/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 4.7°C melted ice, shipping container 2 was 5.2°C on ice and shipping container 3 was 0.7°C on ice.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	AMEC Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of Tx. Hw #375
City, State, Zip	Austin, Tx, 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Only enough water for 3 out of 4 containers on MNW-17
Radchem on this workorder only
gm 7-21-17

Project Information

Project Name, PWSID, Permit, etc.	Texas Municipal Power Agency CCRP (client / Proj.)
Sampler Name	Samuel Macon
Sampler Phone	512-413-3876
Sample Origin State	Tx
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule A	Analysis Requested: Schedule B	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MW-18	7-19-17	1215	4	W					B1707180500 1
2	MNW-17		1330	3						-002
3	MNW-16		1510	4						-003
4	MNW-11		1615	4						-004
5	EQBK/SCM/071917		1700	4						-005
6	MNW-15	7-20-17	1030	4						-006
7	SFL MW-7		1145	4						-007
8	AP MW-6		1305	4						-008
9	EQBK/SCM/072017		1225	4						-009
10	DUP-1	7-19-17	-	4						-010

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Samuel C. Macon	7-20-17 1430	Samuel C. M			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					7/21/17 10:00	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

December 15, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17082461 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 16 samples for Texas Municipal Power Agency on 8/24/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17082461-001	SFL MW-4	08/22/17 17:00	08/24/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Solids, Total Dissolved
B17082461-002	SFL MW-3	08/22/17 18:10	08/24/17	Ground Water	Same As Above
B17082461-003	EQBK/SCM/0822	08/22/17 18:50	08/24/17	Ground Water	Same As Above
B17082461-004	AP MW-3	08/22/17 18:45	08/24/17	Ground Water	Same As Above
B17082461-005	MNW-15	08/22/17 17:15	08/24/17	Ground Water	Same As Above
B17082461-006	DUP-1	08/22/17 0:00	08/24/17	Ground Water	Same As Above
B17082461-007	SFL MW-6	08/23/17 9:55	08/24/17	Ground Water	Same As Above
B17082461-008	SFL MW-7	08/23/17 10:00	08/24/17	Ground Water	Same As Above
B17082461-009	SFL MW-5	08/23/17 11:05	08/24/17	Ground Water	Same As Above
B17082461-010	MNW-18	08/23/17 11:49	08/24/17	Ground Water	Same As Above
B17082461-011	SFL MW-2	08/23/17 12:00	08/24/17	Ground Water	Same As Above
B17082461-014	SSP/AP MW-1	08/23/17 15:50	08/24/17	Ground Water	Same As Above
B17082461-015	EQBK-BJG-082317	08/23/17 15:25	08/24/17	Ground Water	Same As Above
B17082461-016	EQBK/SCM/082317	08/23/17 16:20	08/24/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17082461

Revised Date: 12/15/17
Report Date: 09/05/17

CASE NARRATIVE

Revised Report 12/15/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-001
Client Sample ID: SFL MW-4

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/22/17 17:00
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	740	mg/L		1		E200.7	09/01/17 03:47 / rlh
Magnesium	114	mg/L		1		E200.7	09/01/17 03:47 / rlh
Potassium	51	mg/L		1		E200.7	09/01/17 03:47 / rlh
Sodium	973	mg/L	D	4		E200.7	09/01/17 03:47 / rlh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	08/25/17 10:45 / pjw
Solids, Total Dissolved TDS @ 180 C	5900	mg/L	D	90		A2540 C	08/25/17 09:34 / rik
INORGANICS							
Chloride	1730	mg/L	D	6		E300.0	08/26/17 15:08 / cjm
Sulfate	2240	mg/L	D	20		E300.0	08/26/17 15:08 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	08/29/17 11:19 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:03 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:03 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/29/17 01:03 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/29/17 01:03 / jpv
Boron	0.55	mg/L		0.05		E200.7	09/01/17 03:47 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 01:03 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:03 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/29/17 01:03 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:03 / jpv
Lithium	0.34	mg/L	D	0.04		E200.7	09/01/17 03:47 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 15:49 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:03 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:03 / jpv
Thallium	0.006	mg/L		0.002		E200.8	08/30/17 14:00 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-002
Client Sample ID: SFL MW-3

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/22/17 18:10
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	587	mg/L		1		E200.7	09/01/17 03:50 / rlh
Magnesium	108	mg/L		1		E200.7	09/01/17 03:50 / rlh
Potassium	49	mg/L		1		E200.7	09/01/17 03:50 / rlh
Sodium	785	mg/L	D	4		E200.7	09/01/17 03:50 / rlh
PHYSICAL PROPERTIES							
pH	3.8	s.u.	H	0.1		A4500-H B	08/25/17 10:55 / pjw
Solids, Total Dissolved TDS @ 180 C	5260	mg/L	D	100		A2540 C	08/25/17 09:34 / rik
INORGANICS							
Chloride	1390	mg/L	D	6		E300.0	08/26/17 16:06 / cjm
Sulfate	2310	mg/L	D	20		E300.0	08/26/17 16:06 / cjm
Fluoride	0.6	mg/L		0.1		A4500-F C	08/29/17 11:35 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:06 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:06 / jpv
Barium	0.07	mg/L		0.01		E200.8	08/29/17 01:06 / jpv
Beryllium	0.038	mg/L		0.001		E200.8	08/29/17 01:06 / jpv
Boron	2.64	mg/L		0.05		E200.7	09/01/17 03:50 / rlh
Cadmium	0.008	mg/L		0.005		E200.8	08/29/17 01:06 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:06 / jpv
Cobalt	0.07	mg/L		0.02		E200.8	08/29/17 01:06 / jpv
Lead	0.03	mg/L		0.01		E200.8	08/29/17 01:06 / jpv
Lithium	0.25	mg/L	D	0.04		E200.7	09/01/17 03:50 / rlh
Mercury	0.002	mg/L		0.001		E245.1	08/25/17 15:55 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:06 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:06 / jpv
Thallium	0.007	mg/L		0.002		E200.8	08/30/17 14:02 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-003
Client Sample ID: EQBK/SCM/0822

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/22/17 18:50
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	09/01/17 03:54 / rlh
Magnesium	ND	mg/L		1		E200.7	09/01/17 03:54 / rlh
Potassium	ND	mg/L		1		E200.7	09/01/17 03:54 / rlh
Sodium	ND	mg/L		1		E200.7	09/01/17 03:54 / rlh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	08/25/17 11:00 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/25/17 09:34 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	08/26/17 17:05 / cjm
Sulfate	ND	mg/L		1		E300.0	08/26/17 17:05 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	08/29/17 11:46 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:10 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:10 / jpv
Barium	ND	mg/L		0.01		E200.8	08/29/17 01:10 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/29/17 01:10 / jpv
Boron	ND	mg/L		0.05		E200.7	09/01/17 03:54 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 01:10 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:10 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/29/17 01:10 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:10 / jpv
Lithium	ND	mg/L		0.01		E200.7	09/01/17 03:54 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:01 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:10 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:10 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:05 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-004
Client Sample ID: AP MW-3

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/22/17 18:45
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	134	mg/L		1		E200.7	09/01/17 03:58 / rlh
Magnesium	21	mg/L		1		E200.7	09/01/17 03:58 / rlh
Potassium	12	mg/L		1		E200.7	09/01/17 03:58 / rlh
Sodium	233	mg/L		1		E200.7	09/01/17 03:58 / rlh
PHYSICAL PROPERTIES							
pH	5.4	s.u.	H	0.1		A4500-H B	08/25/17 11:03 / pjw
Solids, Total Dissolved TDS @ 180 C	1360	mg/L	D	20		A2540 C	08/28/17 08:55 / rik
INORGANICS							
Chloride	155	mg/L		1		E300.0	08/26/17 17:24 / cjm
Sulfate	751	mg/L	D	4		E300.0	08/26/17 17:24 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	08/29/17 11:50 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:23 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:23 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/29/17 01:23 / jpv
Beryllium	0.003	mg/L		0.001		E200.8	08/29/17 01:23 / jpv
Boron	3.82	mg/L		0.05		E200.7	09/01/17 03:58 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 01:23 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:23 / jpv
Cobalt	0.04	mg/L		0.02		E200.8	08/29/17 01:23 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:23 / jpv
Lithium	0.04	mg/L		0.01		E200.7	09/01/17 03:58 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:03 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:23 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:23 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:08 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-005
Client Sample ID: MNW-15

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/22/17 17:15
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	254	mg/L		1		E200.7	09/01/17 04:01 / rlh
Magnesium	48	mg/L		1		E200.7	09/01/17 04:01 / rlh
Potassium	27	mg/L		1		E200.7	09/01/17 04:01 / rlh
Sodium	424	mg/L	D	2		E200.7	09/01/17 04:01 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	08/25/17 11:06 / pjw
Solids, Total Dissolved TDS @ 180 C	2620	mg/L	D	40		A2540 C	08/25/17 09:35 / rik
INORGANICS							
Chloride	718	mg/L	D	3		E300.0	08/26/17 17:44 / cjm
Sulfate	1250	mg/L	D	9		E300.0	08/26/17 17:44 / cjm
Fluoride	0.5	mg/L		0.1		A4500-F C	08/29/17 11:57 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:27 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:27 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/29/17 01:27 / jpv
Beryllium	0.074	mg/L		0.001		E200.8	08/29/17 01:27 / jpv
Boron	9.22	mg/L		0.05		E200.7	09/01/17 04:01 / rlh
Cadmium	0.084	mg/L		0.005		E200.8	08/29/17 01:27 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:27 / jpv
Cobalt	0.29	mg/L		0.02		E200.8	08/29/17 01:27 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:27 / jpv
Lithium	0.05	mg/L	D	0.02		E200.7	09/01/17 04:01 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:05 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:27 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:27 / jpv
Thallium	0.002	mg/L		0.002		E200.8	08/30/17 14:10 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-006
Client Sample ID: DUP-1

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/22/17
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	256	mg/L		1		E200.7	09/01/17 04:05 / rlh
Magnesium	49	mg/L		1		E200.7	09/01/17 04:05 / rlh
Potassium	26	mg/L		1		E200.7	09/01/17 04:05 / rlh
Sodium	419	mg/L	D	2		E200.7	09/01/17 04:05 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	08/25/17 11:08 / pjw
Solids, Total Dissolved TDS @ 180 C	2640	mg/L	D	40		A2540 C	08/25/17 09:35 / rik
INORGANICS							
Chloride	720	mg/L	D	3		E300.0	08/26/17 18:03 / cjm
Sulfate	1290	mg/L	D	9		E300.0	08/26/17 18:03 / cjm
Fluoride	0.5	mg/L		0.1		A4500-F C	08/29/17 12:04 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:30 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:30 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/29/17 01:30 / jpv
Beryllium	0.070	mg/L		0.001		E200.8	08/29/17 01:30 / jpv
Boron	9.12	mg/L		0.05		E200.7	09/01/17 04:05 / rlh
Cadmium	0.084	mg/L		0.005		E200.8	08/29/17 01:30 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:30 / jpv
Cobalt	0.28	mg/L		0.02		E200.8	08/29/17 01:30 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:30 / jpv
Lithium	0.04	mg/L	D	0.02		E200.7	09/01/17 04:05 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:06 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:30 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:30 / jpv
Thallium	0.002	mg/L		0.002		E200.8	08/30/17 14:13 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-007
Client Sample ID: SFL MW-6

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 09:55
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	864	mg/L	D	2		E200.7	09/01/17 04:08 / rlh
Magnesium	231	mg/L		1		E200.7	09/01/17 04:08 / rlh
Potassium	71	mg/L		1		E200.7	09/01/17 04:08 / rlh
Sodium	1620	mg/L	D	8		E200.7	09/01/17 04:08 / rlh
PHYSICAL PROPERTIES							
pH	4.0	s.u.	H	0.1		A4500-H B	08/25/17 11:11 / pjw
Solids, Total Dissolved TDS @ 180 C	8260	mg/L	D	90		A2540 C	08/25/17 09:35 / rik
INORGANICS							
Chloride	3730	mg/L	D	10		E300.0	08/26/17 18:23 / cjm
Sulfate	2470	mg/L	D	40		E300.0	08/26/17 18:23 / cjm
Fluoride	0.7	mg/L		0.1		A4500-F C	08/29/17 12:16 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:33 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	08/29/17 01:33 / jpv
Barium	0.04	mg/L		0.01		E200.8	08/29/17 01:33 / jpv
Beryllium	0.056	mg/L		0.001		E200.8	08/29/17 01:33 / jpv
Boron	0.35	mg/L	D	0.07		E200.7	09/01/17 04:08 / rlh
Cadmium	0.012	mg/L		0.005		E200.8	08/29/17 01:33 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:33 / jpv
Cobalt	0.12	mg/L		0.02		E200.8	08/29/17 01:33 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:33 / jpv
Lithium	0.56	mg/L	D	0.09		E200.7	09/01/17 04:08 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:08 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:33 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:33 / jpv
Thallium	0.003	mg/L		0.002		E200.8	08/30/17 14:23 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-008
Client Sample ID: SFL MW-7

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 10:00
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	693	mg/L		1		E200.7	09/01/17 04:19 / rlh
Magnesium	108	mg/L		1		E200.7	09/01/17 04:19 / rlh
Potassium	47	mg/L		1		E200.7	09/01/17 04:19 / rlh
Sodium	1260	mg/L	D	4		E200.7	09/01/17 04:19 / rlh
PHYSICAL PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	08/25/17 11:13 / pjw
Solids, Total Dissolved TDS @ 180 C	6230	mg/L	D	90		A2540 C	08/25/17 09:35 / rik
INORGANICS							
Chloride	2810	mg/L	D	6		E300.0	08/26/17 18:42 / cjm
Sulfate	801	mg/L	D	20		E300.0	08/26/17 18:42 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	08/29/17 12:19 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:37 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:37 / jpv
Barium	0.03	mg/L		0.01		E200.8	08/29/17 01:37 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/29/17 01:37 / jpv
Boron	0.92	mg/L		0.05		E200.7	09/01/17 04:19 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 01:37 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:37 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/29/17 01:37 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:37 / jpv
Lithium	0.40	mg/L	D	0.04		E200.7	09/01/17 04:19 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:10 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:37 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:37 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:26 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-009
Client Sample ID: SFL MW-5

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 11:05
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	864	mg/L	D	2		E200.7	09/01/17 04:22 / rlh
Magnesium	170	mg/L		1		E200.7	09/01/17 04:22 / rlh
Potassium	56	mg/L		1		E200.7	09/01/17 04:22 / rlh
Sodium	1650	mg/L	D	8		E200.7	09/01/17 04:22 / rlh
PHYSICAL PROPERTIES							
pH	4.9	s.u.	H	0.1		A4500-H B	08/25/17 11:16 / pjw
Solids, Total Dissolved TDS @ 180 C	7520	mg/L	D	100		A2540 C	08/25/17 09:36 / rik
INORGANICS							
Chloride	3190	mg/L	D	10		E300.0	08/26/17 19:02 / cjm
Sulfate	2240	mg/L	D	40		E300.0	08/26/17 19:02 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	08/29/17 12:26 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:40 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:40 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/29/17 01:40 / jpv
Beryllium	0.010	mg/L		0.001		E200.8	08/29/17 01:40 / jpv
Boron	4.12	mg/L	D	0.07		E200.7	09/01/17 04:22 / rlh
Cadmium	0.006	mg/L		0.005		E200.8	08/29/17 01:40 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:40 / jpv
Cobalt	0.05	mg/L		0.02		E200.8	08/29/17 01:40 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:40 / jpv
Lithium	0.62	mg/L	D	0.09		E200.7	09/01/17 04:22 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:12 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:40 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:40 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:28 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-010
Client Sample ID: MNW-18

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 11:49
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	447	mg/L		1		E200.7	09/01/17 04:26 / rlh
Magnesium	71	mg/L		1		E200.7	09/01/17 04:26 / rlh
Potassium	40	mg/L		1		E200.7	09/01/17 04:26 / rlh
Sodium	782	mg/L	D	4		E200.7	09/01/17 04:26 / rlh
PHYSICAL PROPERTIES							
pH	7.0	s.u.	H	0.1		A4500-H B	08/25/17 11:19 / pjw
Solids, Total Dissolved TDS @ 180 C	3920	mg/L	D	40		A2540 C	08/28/17 08:19 / rik
INORGANICS							
Chloride	529	mg/L	D	6		E300.0	08/26/17 19:21 / cjm
Sulfate	2090	mg/L	D	20		E300.0	08/26/17 19:21 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	08/29/17 12:29 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:44 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:44 / jpv
Barium	0.06	mg/L		0.01		E200.8	08/29/17 01:44 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/29/17 01:44 / jpv
Boron	0.54	mg/L		0.05		E200.7	09/01/17 04:26 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 01:44 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:44 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/29/17 01:44 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:44 / jpv
Lithium	0.44	mg/L	D	0.04		E200.7	09/01/17 04:26 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:14 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:44 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:44 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:31 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-011
Client Sample ID: SFL MW-2

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 12:00
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	833	mg/L	D	2		E200.7	09/01/17 04:29 / rlh
Magnesium	129	mg/L		1		E200.7	09/01/17 04:29 / rlh
Potassium	48	mg/L		1		E200.7	09/01/17 04:29 / rlh
Sodium	1510	mg/L	D	8		E200.7	09/01/17 04:29 / rlh
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	08/25/17 11:21 / pjw
Solids, Total Dissolved TDS @ 180 C	7120	mg/L	D	90		A2540 C	08/28/17 08:19 / rik
INORGANICS							
Chloride	2910	mg/L	D	10		E300.0	08/26/17 19:41 / cjm
Sulfate	1890	mg/L	D	40		E300.0	08/26/17 19:41 / cjm
Fluoride	0.3	mg/L		0.1		A4500-F C	08/29/17 12:44 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 01:47 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 01:47 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/29/17 01:47 / jpv
Beryllium	0.003	mg/L		0.001		E200.8	08/29/17 01:47 / jpv
Boron	0.57	mg/L	D	0.07		E200.7	09/01/17 04:29 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 01:47 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 01:47 / jpv
Cobalt	0.02	mg/L		0.02		E200.8	08/29/17 01:47 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 01:47 / jpv
Lithium	0.33	mg/L	D	0.09		E200.7	09/01/17 04:29 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:17 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 01:47 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 01:47 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:34 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-014
Client Sample ID: SSP/AP MW-1

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 15:50
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	653	mg/L		1		E200.7	09/01/17 04:40 / rlh
Magnesium	158	mg/L		1		E200.7	09/01/17 04:40 / rlh
Potassium	57	mg/L		1		E200.7	09/01/17 04:40 / rlh
Sodium	1370	mg/L	D	4		E200.7	09/01/17 04:40 / rlh
PHYSICAL PROPERTIES							
pH	6.2	s.u.	H	0.1		A4500-H B	08/25/17 11:32 / pjw
Solids, Total Dissolved TDS @ 180 C	6530	mg/L	D	100		A2540 C	08/28/17 08:20 / rik
INORGANICS							
Chloride	1600	mg/L	D	6		E300.0	08/26/17 21:57 / cjm
Sulfate	3070	mg/L	D	20		E300.0	08/26/17 21:57 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	08/29/17 12:57 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 02:07 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 02:07 / jpv
Barium	0.05	mg/L		0.01		E200.8	08/29/17 02:07 / jpv
Beryllium	0.001	mg/L		0.001		E200.8	08/29/17 02:07 / jpv
Boron	0.81	mg/L		0.05		E200.7	09/01/17 04:40 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 02:07 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 02:07 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/29/17 02:07 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 02:07 / jpv
Lithium	1.35	mg/L	D	0.04		E200.7	09/01/17 04:40 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:27 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 02:07 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 02:07 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:41 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-015
Client Sample ID: EQBK-BJG-082317

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 15:25
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	09/01/17 04:44 / rlh
Magnesium	ND	mg/L		1		E200.7	09/01/17 04:44 / rlh
Potassium	ND	mg/L		1		E200.7	09/01/17 04:44 / rlh
Sodium	ND	mg/L		1		E200.7	09/01/17 04:44 / rlh
PHYSICAL PROPERTIES							
pH	6.2	s.u.	H	0.1		A4500-H B	08/25/17 11:34 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/28/17 08:20 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	08/26/17 22:17 / cjm
Sulfate	ND	mg/L		1		E300.0	08/26/17 22:17 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	08/29/17 13:07 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 02:11 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 02:11 / jpv
Barium	ND	mg/L		0.01		E200.8	08/29/17 02:11 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/29/17 02:11 / jpv
Boron	ND	mg/L		0.05		E200.7	09/01/17 04:44 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 02:11 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 02:11 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/29/17 02:11 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 02:11 / jpv
Lithium	ND	mg/L		0.01		E200.7	09/01/17 04:44 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:29 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 02:11 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 02:11 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:44 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082461-016
Client Sample ID: EQBK/SCM/082317

Revised Date: 12/15/17
Report Date: 09/05/17
Collection Date: 08/23/17 16:20
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	09/01/17 04:47 / rlh
Magnesium	ND	mg/L		1		E200.7	09/01/17 04:47 / rlh
Potassium	ND	mg/L		1		E200.7	09/01/17 04:47 / rlh
Sodium	ND	mg/L		1		E200.7	09/01/17 04:47 / rlh
PHYSICAL PROPERTIES							
pH	5.8	s.u.	H	0.1		A4500-H B	08/25/17 11:37 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/28/17 08:21 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	08/26/17 22:36 / cjm
Sulfate	ND	mg/L		1		E300.0	08/26/17 22:36 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	08/29/17 13:14 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/29/17 02:14 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/29/17 02:14 / jpv
Barium	ND	mg/L		0.01		E200.8	08/29/17 02:14 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/29/17 02:14 / jpv
Boron	ND	mg/L		0.05		E200.7	09/01/17 04:47 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/29/17 02:14 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/29/17 02:14 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/29/17 02:14 / jpv
Lead	ND	mg/L		0.01		E200.8	08/29/17 02:14 / jpv
Lithium	ND	mg/L		0.01		E200.7	09/01/17 04:47 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/25/17 16:31 / jag
Molybdenum	ND	mg/L		0.05		E200.8	08/29/17 02:14 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/29/17 02:14 / jpv
Thallium	ND	mg/L		0.002		E200.8	08/30/17 14:47 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/05/17
Project: CCRR
Work Order: B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 113036
Lab ID: LCS-113036		Laboratory Control Sample				Run: BAL #SD-15_170825D				08/25/17 09:30
Solids, Total Dissolved TDS @ 180 C		983	mg/L	10	97	90	110			
Lab ID: B17082448-002A DUP		Sample Duplicate				Run: BAL #SD-15_170825D				08/25/17 09:33
Solids, Total Dissolved TDS @ 180 C		782	mg/L	10				0.6	5	
Lab ID: MB-113036		Method Blank				Run: BAL #SD-15_170825D				08/28/17 08:48
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Method: A2540 C										Batch: 113070
Lab ID: MB-113070		Method Blank				Run: BAL #SD-15_170828C				08/28/17 08:16
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-113070		Laboratory Control Sample				Run: BAL #SD-15_170828C				08/28/17 08:17
Solids, Total Dissolved TDS @ 180 C		987	mg/L	10	99	90	110			
Lab ID: B17082598-003A DUP		Sample Duplicate				Run: BAL #SD-15_170828C				08/28/17 08:18
Solids, Total Dissolved TDS @ 180 C		6410	mg/L	98				0.5	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/05/17
Project: CCRR
Work Order: B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170829A	
Lab ID: **ICV**		Initial Calibration Verification Standard							08/29/17 10:16	
Fluoride		0.950	mg/L	0.10	95	90	110			
Method: **A4500-F C**									Batch: R285788	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170829A			08/29/17 10:13	
Fluoride		0.02	mg/L	0.02						
Lab ID: **B17082461-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170829A			08/29/17 11:21	
Fluoride		1.05	mg/L	0.10	95	80	120			
Lab ID: **B17082461-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170829A			08/29/17 11:24	
Fluoride		1.07	mg/L	0.10	97	80	120	1.9	10	
Lab ID: **B17082461-011AMS**		Sample Matrix Spike				Run: MAN-TECH_170829A			08/29/17 12:46	
Fluoride		1.20	mg/L	0.10	93	80	120			
Lab ID: **B17082461-011AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170829A			08/29/17 12:49	
Fluoride		1.23	mg/L	0.10	96	80	120	2.5	10	
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170829A			08/29/17 17:01	
Fluoride		0.920	mg/L	0.10	92	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/05/17
Project: CCRR
Work Order: B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170825A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								08/25/17 08:12	
pH		7.98	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R285537	
Lab ID: **B17082461-002ADUP**	Sample Duplicate					Run: PHSC _101-B_170825A			08/25/17 10:58	
pH		3.83	s.u.	0.10				0.3	3	
Lab ID: **B17082461-012ADUP**	Sample Duplicate					Run: PHSC _101-B_170825A			08/25/17 11:26	
pH		7.26	s.u.	0.10				0.3	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/05/17
Project: CCRR
Work Order: B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Analytical Run: IC METROHM 1_170825A
Lab ID: ICV	2	Initial Calibration Verification Standard								08/25/17 16:04
Chloride		2.22	mg/L	1.0	99	90	110			
Sulfate		9.08	mg/L	1.0	101	90	110			
Method: E300.0										Batch: R285660
Lab ID: ICB	2	Method Blank				Run: IC METROHM 1_170825A				08/25/17 16:23
Chloride		ND	mg/L	0.006						
Sulfate		ND	mg/L	0.02						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: IC METROHM 1_170825A				08/25/17 16:43
Chloride		10.1	mg/L	1.0	101	90	110			
Sulfate		30.1	mg/L	1.0	100	90	110			
Lab ID: B17082461-002AMS	2	Sample Matrix Spike				Run: IC METROHM 1_170825A				08/26/17 16:26
Chloride		2430	mg/L	6.1	104	90	110			
Sulfate		5500	mg/L	18	106	90	110			
Lab ID: B17082461-002AMSD	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170825A				08/26/17 16:45
Chloride		2410	mg/L	6.1	103	90	110	0.7	20	
Sulfate		5470	mg/L	18	105	90	110	0.7	20	
Lab ID: B17082461-012AMS	2	Sample Matrix Spike				Run: IC METROHM 1_170825A				08/26/17 20:59
Chloride		3140	mg/L	6.1	99	90	110			E
Sulfate		4140	mg/L	18	108	90	110			
Lab ID: B17082461-012AMSD	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170825A				08/26/17 21:18
Chloride		3130	mg/L	6.1	98	90	110	0.3	20	E
Sulfate		4140	mg/L	18	108	90	110	0.1	20	
Method: E300.0										Analytical Run: IC METROHM 1_170829A
Lab ID: ICV		Initial Calibration Verification Standard								08/29/17 15:29
Chloride		2.21	mg/L	1.0	98	90	110			
Method: E300.0										Batch: R285818
Lab ID: ICB		Method Blank				Run: IC METROHM 1_170829A				08/29/17 15:49
Chloride		ND	mg/L	0.006						
Lab ID: LFB		Laboratory Fortified Blank				Run: IC METROHM 1_170829A				08/29/17 16:08
Chloride		10.2	mg/L	1.0	102	90	110			
Lab ID: B17081933-011AMS		Sample Matrix Spike				Run: IC METROHM 1_170829A				08/29/17 17:06
Chloride		6160	mg/L	31	107	90	110			
Lab ID: B17081933-011AMSD		Sample Matrix Spike Duplicate				Run: IC METROHM 1_170829A				08/29/17 17:26
Chloride		6150	mg/L	31	107	90	110	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

E - Estimated value. Result exceeds the instrument upper quantitation limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP203-B_170831A
Lab ID: ICV	6	Continuing Calibration Verification Standard								08/31/17 11:49
Boron		2.50	mg/L	0.10	100	95	105			
Calcium		25.0	mg/L	1.0	100	95	105			
Lithium		1.27	mg/L	0.10	101	95	105			
Magnesium		24.9	mg/L	1.0	99	95	105			
Potassium		25.8	mg/L	1.0	103	95	105			
Sodium		25.6	mg/L	1.0	103	95	105			
Method: E200.7										Batch: 113004
Lab ID: MB-113004	6	Method Blank				Run: ICP203-B_170831A				09/01/17 03:08
Boron		ND	mg/L	0.003						
Calcium		0.2	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: LCS-113004	6	Laboratory Control Sample				Run: ICP203-B_170831A				09/01/17 03:12
Boron		0.452	mg/L	0.10	90	85	115			
Calcium		24.2	mg/L	1.0	96	85	115			
Lithium		0.468	mg/L	0.10	94	85	115			
Magnesium		24.2	mg/L	1.0	97	85	115			
Potassium		24.1	mg/L	1.0	96	85	115			
Sodium		24.2	mg/L	1.0	97	85	115			
Lab ID: B17082448-001CMS3	6	Sample Matrix Spike				Run: ICP203-B_170831A				09/01/17 03:26
Boron		0.686	mg/L	0.050	101	70	130			
Calcium		104	mg/L	1.0	98	70	130			
Lithium		0.506	mg/L	0.10	98	70	130			
Magnesium		77.0	mg/L	1.0	99	70	130			
Potassium		29.5	mg/L	1.0	98	70	130			
Sodium		105	mg/L	1.0	96	70	130			
Lab ID: B17082448-001CMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_170831A				09/01/17 03:36
Boron		0.688	mg/L	0.050	102	70	130	0.4	20	
Calcium		105	mg/L	1.0	101	70	130	0.7	20	
Lithium		0.514	mg/L	0.10	99	70	130	1.5	20	
Magnesium		77.3	mg/L	1.0	100	70	130	0.4	20	
Potassium		29.7	mg/L	1.0	99	70	130	0.6	20	
Sodium		107	mg/L	1.0	101	70	130	1.3	20	
Lab ID: B17082461-016BMS3	6	Sample Matrix Spike				Run: ICP203-B_170831A				09/01/17 05:05
Boron		0.496	mg/L	0.050	99	70	130			
Calcium		26.6	mg/L	1.0	105	70	130			
Lithium		0.516	mg/L	0.10	103	70	130			
Magnesium		26.1	mg/L	1.0	104	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**										Batch: 113004
Lab ID: **B17082461-016BMS3**	6	Sample Matrix Spike				Run: ICP203-B_170831A				09/01/17 05:05
Potassium		26.8	mg/L	1.0	107	70	130			
Sodium		26.5	mg/L	1.0	104	70	130			
Lab ID: **B17082461-016BMSD**	6	Sample Matrix Spike Duplicate				Run: ICP203-B_170831A				09/01/17 05:08
Boron		0.484	mg/L	0.050	97	70	130	2.5	20	
Calcium		25.5	mg/L	1.0	101	70	130	4.0	20	
Lithium		0.504	mg/L	0.10	101	70	130	2.3	20	
Magnesium		25.5	mg/L	1.0	102	70	130	2.3	20	
Potassium		26.0	mg/L	1.0	103	70	130	3.1	20	
Sodium		25.7	mg/L	1.0	101	70	130	3.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS202-B_170830A	
Lab ID: **QCS**	Initial Calibration Verification Standard								08/30/17 13:06	
Thallium		0.0491	mg/L	0.10	98	90	110			
Method: **E200.8**									Batch: 113004	
Lab ID: **MB-113004**	11	Method Blank				Run: ICPMS202-B_170830A			08/30/17 13:37	
Antimony		0.00007	mg/L	0.00004						
Arsenic		0.0002	mg/L	0.00006						
Barium		ND	mg/L	0.00004						
Beryllium		ND	mg/L	0.00002						
Cadmium		ND	mg/L	0.00002						
Chromium		0.0003	mg/L	0.00009						
Cobalt		ND	mg/L	0.00003						
Lead		0.00009	mg/L	0.00005						
Molybdenum		0.006	mg/L	0.00005						
Selenium		ND	mg/L	0.0002						
Thallium		ND	mg/L	0.0001						
Lab ID: **LCS-113004**	11	Laboratory Control Sample				Run: ICPMS202-B_170830A			08/30/17 13:50	
Antimony		0.573	mg/L	0.0050	115	85	115			
Arsenic		0.522	mg/L	0.0010	104	85	115			
Barium		0.525	mg/L	0.010	105	85	115			
Beryllium		0.255	mg/L	0.0010	102	85	115			
Cadmium		0.265	mg/L	0.0010	106	85	115			
Chromium		0.494	mg/L	0.0010	99	85	115			
Cobalt		0.490	mg/L	0.0010	98	85	115			
Lead		0.534	mg/L	0.0010	107	85	115			
Molybdenum		0.537	mg/L	0.0050	106	85	115			
Selenium		0.512	mg/L	0.0050	102	85	115			
Thallium		0.504	mg/L	0.0010	101	85	115			
Lab ID: **B17082448-001CMS3**	11	Sample Matrix Spike				Run: ICPMS202-B_170830A			08/30/17 13:52	
Antimony		0.541	mg/L	0.0010	108	70	130			
Arsenic		0.530	mg/L	0.0010	106	70	130			
Barium		0.593	mg/L	0.050	106	70	130			
Beryllium		0.247	mg/L	0.0010	99	70	130			
Cadmium		0.258	mg/L	0.0010	103	70	130			
Chromium		0.500	mg/L	0.0050	100	70	130			
Cobalt		0.493	mg/L	0.0050	99	70	130			
Lead		0.542	mg/L	0.0010	108	70	130			
Molybdenum		0.526	mg/L	0.0010	104	70	130			
Selenium		0.505	mg/L	0.0010	101	70	130			
Thallium		0.510	mg/L	0.00050	102	70	130			
Lab ID: **B17082448-001CMSD**	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170830A			08/30/17 13:55	
Antimony		0.532	mg/L	0.0010	106	70	130	1.8	20	
Arsenic		0.531	mg/L	0.0010	106	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 113004
Lab ID: B17082448-001CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170830A				08/30/17 13:55
Barium		0.597	mg/L	0.050	107	70	130	0.6	20	
Beryllium		0.250	mg/L	0.0010	100	70	130	1.4	20	
Cadmium		0.258	mg/L	0.0010	103	70	130	0.0	20	
Chromium		0.496	mg/L	0.0050	99	70	130	0.8	20	
Cobalt		0.492	mg/L	0.0050	98	70	130	0.2	20	
Lead		0.553	mg/L	0.0010	110	70	130	1.9	20	
Molybdenum		0.520	mg/L	0.0010	103	70	130	1.1	20	
Selenium		0.505	mg/L	0.0010	101	70	130	0.0	20	
Thallium		0.515	mg/L	0.00050	103	70	130	0.9	20	
Lab ID: B17082461-016BMS3	11	Sample Matrix Spike				Run: ICPMS202-B_170830A				08/30/17 14:57
Antimony		0.549	mg/L	0.0010	110	70	130			
Arsenic		0.532	mg/L	0.0010	106	70	130			
Barium		0.572	mg/L	0.050	114	70	130			
Beryllium		0.263	mg/L	0.0010	105	70	130			
Cadmium		0.274	mg/L	0.0010	110	70	130			
Chromium		0.498	mg/L	0.0050	99	70	130			
Cobalt		0.505	mg/L	0.0050	101	70	130			
Lead		0.553	mg/L	0.0010	111	70	130			
Molybdenum		0.503	mg/L	0.0010	101	70	130			
Selenium		0.519	mg/L	0.0010	104	70	130			
Thallium		0.529	mg/L	0.00050	106	70	130			
Lab ID: B17082461-016BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS202-B_170830A				08/30/17 14:59
Antimony		0.555	mg/L	0.0010	111	70	130	1.1	20	
Arsenic		0.532	mg/L	0.0010	106	70	130	0.0	20	
Barium		0.558	mg/L	0.050	111	70	130	2.5	20	
Beryllium		0.260	mg/L	0.0010	104	70	130	1.0	20	
Cadmium		0.274	mg/L	0.0010	110	70	130	0.0	20	
Chromium		0.504	mg/L	0.0050	101	70	130	1.3	20	
Cobalt		0.501	mg/L	0.0050	100	70	130	0.8	20	
Lead		0.551	mg/L	0.0010	110	70	130	0.4	20	
Molybdenum		0.514	mg/L	0.0010	103	70	130	2.2	20	
Selenium		0.520	mg/L	0.0010	104	70	130	0.4	20	
Thallium		0.527	mg/L	0.00050	105	70	130	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170828A	
Lab ID: QCS	10	Initial Calibration Verification Standard							08/28/17 23:35	
Antimony		0.0498	mg/L	0.050	100	90	110			
Arsenic		0.0520	mg/L	0.0050	104	90	110			
Barium		0.0491	mg/L	0.10	98	90	110			
Beryllium		0.0268	mg/L	0.0010	107	90	110			
Cadmium		0.0265	mg/L	0.0010	106	90	110			
Chromium		0.0538	mg/L	0.010	108	90	110			
Cobalt		0.0510	mg/L	0.010	102	90	110			
Lead		0.0490	mg/L	0.010	98	90	110			
Molybdenum		0.0471	mg/L	0.0050	94	90	110			
Selenium		0.0515	mg/L	0.0050	103	90	110			
Method: E200.8									Batch: 113004	
Lab ID: MB-113004	11	Method Blank				Run: ICPMS206-B_170828A			08/29/17 00:43	
Antimony		0.00009	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		0.00002	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00008	mg/L	7E-06						
Lab ID: LCS-113004	11	Laboratory Control Sample				Run: ICPMS206-B_170828A			08/29/17 00:49	
Antimony		0.571	mg/L	0.0050	114	85	115			
Arsenic		0.524	mg/L	0.0010	105	85	115			
Barium		0.509	mg/L	0.010	102	85	115			
Beryllium		0.255	mg/L	0.0010	102	85	115			
Cadmium		0.263	mg/L	0.0010	105	85	115			
Chromium		0.524	mg/L	0.0010	105	85	115			
Cobalt		0.525	mg/L	0.0010	105	85	115			
Lead		0.515	mg/L	0.0010	103	85	115			
Molybdenum		0.516	mg/L	0.0050	103	85	115			
Selenium		0.528	mg/L	0.0050	106	85	115			
Thallium		0.561	mg/L	0.0010	112	85	115			
Lab ID: B17082448-001CMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170828A			08/29/17 00:53	
Antimony		0.531	mg/L	0.0010	106	70	130			
Arsenic		0.541	mg/L	0.0010	108	70	130			
Barium		0.574	mg/L	0.050	103	70	130			
Beryllium		0.242	mg/L	0.0010	97	70	130			
Cadmium		0.264	mg/L	0.0010	106	70	130			
Chromium		0.522	mg/L	0.0050	104	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 113004
Lab ID: B17082448-001CMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170828A				08/29/17 00:53
Cobalt		0.517	mg/L	0.0050	103	70	130			
Lead		0.510	mg/L	0.0010	102	70	130			
Molybdenum		0.495	mg/L	0.0010	98	70	130			
Selenium		0.532	mg/L	0.0010	106	70	130			
Thallium		0.512	mg/L	0.00050	102	70	130			
Lab ID: B17082448-001CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170828A				08/29/17 00:56
Antimony		0.538	mg/L	0.0010	108	70	130	1.3	20	
Arsenic		0.541	mg/L	0.0010	108	70	130	0.0	20	
Barium		0.580	mg/L	0.050	104	70	130	1.0	20	
Beryllium		0.252	mg/L	0.0010	101	70	130	3.9	20	
Cadmium		0.266	mg/L	0.0010	106	70	130	0.5	20	
Chromium		0.524	mg/L	0.0050	105	70	130	0.5	20	
Cobalt		0.520	mg/L	0.0050	104	70	130	0.6	20	
Lead		0.508	mg/L	0.0010	101	70	130	0.4	20	
Molybdenum		0.505	mg/L	0.0010	100	70	130	2.0	20	
Selenium		0.535	mg/L	0.0010	107	70	130	0.5	20	
Thallium		0.510	mg/L	0.00050	102	70	130	0.4	20	
Lab ID: B17082461-016BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170828A				08/29/17 02:18
Antimony		0.528	mg/L	0.0010	106	70	130			
Arsenic		0.531	mg/L	0.0010	106	70	130			
Barium		0.520	mg/L	0.050	104	70	130			
Beryllium		0.247	mg/L	0.0010	99	70	130			
Cadmium		0.267	mg/L	0.0010	107	70	130			
Chromium		0.530	mg/L	0.0050	106	70	130			
Cobalt		0.536	mg/L	0.0050	107	70	130			
Lead		0.520	mg/L	0.0010	104	70	130			
Molybdenum		0.474	mg/L	0.0010	95	70	130			
Selenium		0.534	mg/L	0.0010	107	70	130			
Thallium		0.579	mg/L	0.00050	116	70	130			
Lab ID: B17082461-016BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170828A				08/29/17 02:21
Antimony		0.540	mg/L	0.0010	108	70	130	2.3	20	
Arsenic		0.523	mg/L	0.0010	105	70	130	1.5	20	
Barium		0.517	mg/L	0.050	103	70	130	0.5	20	
Beryllium		0.253	mg/L	0.0010	101	70	130	2.5	20	
Cadmium		0.266	mg/L	0.0010	106	70	130	0.3	20	
Chromium		0.536	mg/L	0.0050	107	70	130	1.1	20	
Cobalt		0.532	mg/L	0.0050	106	70	130	0.7	20	
Lead		0.520	mg/L	0.0010	104	70	130	0.0	20	
Molybdenum		0.492	mg/L	0.0010	98	70	130	3.8	20	
Selenium		0.523	mg/L	0.0010	105	70	130	2.1	20	
Thallium		0.576	mg/L	0.00050	115	70	130	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: 113004	
Lab ID: B17082448-001CMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170829A			08/29/17 23:54	
Antimony		0.541	mg/L	0.0010	108	70	130			
Arsenic		0.533	mg/L	0.0010	106	70	130			
Barium		0.578	mg/L	0.050	103	70	130			
Beryllium		0.238	mg/L	0.0010	95	70	130			
Cadmium		0.258	mg/L	0.0010	103	70	130			
Chromium		0.508	mg/L	0.0050	101	70	130			
Cobalt		0.565	mg/L	0.0050	113	70	130			
Lead		0.524	mg/L	0.0010	105	70	130			
Molybdenum		0.510	mg/L	0.0010	101	70	130			
Selenium		0.509	mg/L	0.0010	101	70	130			
Thallium		0.512	mg/L	0.00050	102	70	130			
Lab ID: B17082448-001CMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170829A			08/29/17 23:57	
Antimony		0.545	mg/L	0.0010	109	70	130	0.8	20	
Arsenic		0.532	mg/L	0.0010	106	70	130	0.2	20	
Barium		0.585	mg/L	0.050	105	70	130	1.2	20	
Beryllium		0.243	mg/L	0.0010	97	70	130	2.4	20	
Cadmium		0.257	mg/L	0.0010	103	70	130	0.1	20	
Chromium		0.508	mg/L	0.0050	101	70	130	0.1	20	
Cobalt		0.545	mg/L	0.0050	109	70	130	3.5	20	
Lead		0.521	mg/L	0.0010	104	70	130	0.6	20	
Molybdenum		0.511	mg/L	0.0010	101	70	130	0.1	20	
Selenium		0.506	mg/L	0.0010	101	70	130	0.7	20	
Thallium		0.498	mg/L	0.00050	100	70	130	2.7	20	
Lab ID: B17082461-016BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170829A			08/30/17 01:19	
Antimony		0.542	mg/L	0.0010	108	70	130			
Arsenic		0.535	mg/L	0.0010	107	70	130			
Barium		0.544	mg/L	0.050	109	70	130			
Beryllium		0.255	mg/L	0.0010	102	70	130			
Cadmium		0.269	mg/L	0.0010	108	70	130			
Chromium		0.530	mg/L	0.0050	106	70	130			
Cobalt		0.590	mg/L	0.0050	118	70	130			
Lead		0.526	mg/L	0.0010	105	70	130			
Molybdenum		0.498	mg/L	0.0010	100	70	130			
Selenium		0.521	mg/L	0.0010	104	70	130			
Thallium		0.667	mg/L	0.00050	133	70	130			S
Lab ID: B17082461-016BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170829A			08/30/17 01:22	
Antimony		0.572	mg/L	0.0010	114	70	130	5.3	20	
Arsenic		0.480	mg/L	0.0010	96	70	130	11	20	
Barium		0.554	mg/L	0.050	111	70	130	1.8	20	
Beryllium		0.258	mg/L	0.0010	103	70	130	1.1	20	
Cadmium		0.239	mg/L	0.0010	96	70	130	12	20	
Chromium		0.472	mg/L	0.0050	94	70	130	11	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Batch: 113004	
Lab ID: **B17082461-016BMSD**	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170829A			08/30/17 01:22	
Cobalt		0.588	mg/L	0.0050	118	70	130	0.3	20	
Lead		0.546	mg/L	0.0010	109	70	130	3.7	20	
Molybdenum		0.526	mg/L	0.0010	105	70	130	5.4	20	
Selenium		0.506	mg/L	0.0010	101	70	130	3.0	20	
Thallium		0.677	mg/L	0.00050	135	70	130	1.4	20	S

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/05/17

Project: CCRR **Work Order:** B17082461

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170825A	
Lab ID: **ICV**		Initial Calibration Verification Standard							08/25/17 14:51	
Mercury		0.00182	mg/L	0.00010	91	90	110			
Method: **E245.1**									Batch: 113011	
Lab ID: **MB-113011**		Method Blank				Run: HGCV202-B_170825A			08/25/17 15:46	
Mercury		ND	mg/L	1E-06						
Lab ID: **LCS-113011**		Laboratory Control Sample				Run: HGCV202-B_170825A			08/25/17 15:48	
Mercury		0.00186	mg/L	0.00010	93	85	115			
Lab ID: **B17082461-001BMS**		Sample Matrix Spike				Run: HGCV202-B_170825A			08/25/17 15:51	
Mercury		0.00179	mg/L	0.00010	89	70	130			
Lab ID: **B17082461-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170825A			08/25/17 15:53	
Mercury		0.00186	mg/L	0.00010	93	70	130	4.2	30	
Lab ID: **B17082517-001BMS**		Sample Matrix Spike				Run: HGCV202-B_170825A			08/25/17 16:34	
Mercury		0.00187	mg/L	0.00010	93	70	130			
Lab ID: **B17082517-001BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170825A			08/25/17 16:36	
Mercury		0.00185	mg/L	0.00010	92	70	130	1.0	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency B17082461

Login completed by: Gina McCartney
Date Received: 8/24/2017
Reviewed by: BL2000\tedwards
Received by: se
Reviewed Date: 8/29/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 2.5°C, shipping container 2 was 4.0°C, shipping container 3 was 1.0°C, shipping container 4 was 2.8°C and shipping container 5 was 2.0°C.

The collection time indicated on the container label for sample MNW-11 is 12:00 and on the Chain of Custody it is 13:00. Proceeded with the collection time as indicated on the Chain of Custody.

Chain of Custody & Analytical Request Record

www.energylab.com

ENERGY — Trust our People. Trust our Data.

Page 1 of 2

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

All analysis except Rad Chem on this work order (JM) 8-24-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project : CCRR		
Sampler Name	B. Gieselman	Sampler Phone	512-241-2321
Sample Origin State	TX	EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

#	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SFL MW-4	8/22/17	1700	4	W	X	X			B17082461-001
2	SFL MW-3		1810							
3	EQBK/SCM/0822		1850							-002
4	AP MW-3		1845							-003
5	MNW-15		1715							-004
6	DUP-1		—							-005
7	SFL MW-6	8/23/17	0955							-006
8	SFL MW-7		1000							-007
9	SFL MW-5		1105							-008
10	MNW-18		1149							-009
										-010

Custody Record MUST be signed

Relinquished by (print): Brian Gieselman	Date/Time: 08/23/17 @ 1815	Signature: [signature]	Received by (print) / Date/Time / Signature
Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) / Date/Time / Signature: [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy, #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All analysis except RadChem on this work order qm 8-24-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SFL MW-2	8/23/17	1200	4	W	X	X			B1708246-011
2	MNW-11		1300							-012
3	MNW-16		1426							-013
4	SSP/AP MW-1		1550							-014
5	EQBK-BJG-082317		1525							-015
6	EQBK/SCM/082317		1620							-016
7										
8										
9										
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	08/23/17 @1815				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature

LABORATORY USE

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

October 13, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17082465 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 16 samples for Texas Municipal Power Agency on 8/24/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17082465-001	SFL MW-4	08/22/17 17:00	08/24/17	Ground Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
B17082465-002	SFL MW-3	08/22/17 18:10	08/24/17	Ground Water	Same As Above
B17082465-003	EQBK/SCM/0822	08/22/17 18:50	08/24/17	Ground Water	Same As Above
B17082465-004	AP MW-3	08/22/17 18:45	08/24/17	Ground Water	Same As Above
B17082465-005	MNW-15	08/22/17 17:15	08/24/17	Ground Water	Same As Above
B17082465-006	DUP-1	08/22/17 0:00	08/24/17	Ground Water	Same As Above
B17082465-007	SFL MW-6	08/23/17 9:55	08/24/17	Ground Water	Same As Above
B17082465-008	SFL MW-7	08/23/17 10:00	08/24/17	Ground Water	Same As Above
B17082465-009	SFL MW-5	08/23/17 11:05	08/24/17	Ground Water	Same As Above
B17082465-010	MNW-18	08/23/17 11:49	08/24/17	Ground Water	Same As Above
B17082465-011	SFL MW-2	08/23/17 12:00	08/24/17	Ground Water	Same As Above
					e
B17082465-014	SSP/AP MW-1	08/23/17 15:50	08/24/17	Ground Water	Same As Above
B17082465-015	EQBK-BJG-082317	08/23/17 15:25	08/24/17	Ground Water	Same As Above
B17082465-016	EQBK/SCM/082317	08/23/17 16:20	08/24/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17082465

Revised Date: 10/13/17
Report Date: 09/21/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

Revised Report 10/10/2017

Per request from Shari Endy on 9/22/17, re-analyze Radium 228 on sample MNW-15 and DUP-1.

Before re-analysis bottle identifications were verified.

For MNW-15 a result of -0.03 pCi/L was originally reported from an analytical run on 9/14/17. The sample was re-analyzed on 9/27/17 with a result of 1.1 pCi/L. Both results were below the Minimum Detectable Concentration (MDC). The re-analysis result confirmed the original result. The original total of Ra226 and Ra228 was retained.

For DUP-1 a result of 5.7 pCi/L was originally reported from an analytical run on 9/14/17. The sample was re-analyzed on 9/27/17 with a result of 0.80 pCi/L. Since the re-analysis did not meet our replication criteria, a third analysis was performed 10/8/2017 with a result of 1.0 pCi/L. Both re-analysis results were below the MDC. The re-analysis result will be reported. Since the Ra228 value has changed, the total of Ra226 and Ra228 has been revised.

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-001
Client Sample ID: SFL MW-4

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/22/17 17:00
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.59	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	1.5	pCi/L	U			RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	0.99	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	2.1	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-002
Client Sample ID: SFL MW-3

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/22/17 18:10
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.6	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.39	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	4.4	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	6.1	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-003
Client Sample ID: EQBK/SCM/0822

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/22/17 18:50
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.16	pCi/L	U			E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	0.41	pCi/L	U			RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	2.1	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	0.6	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.1	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-004
Client Sample ID: AP MW-3

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/22/17 18:45
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.55	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.19	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	4.2	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	4.8	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-005
Client Sample ID: MNW-15

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/22/17 17:15
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.28	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	-0.03	pCi/L	U			RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	0.3	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-006
Client Sample ID: DUP-1

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/22/17
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.24	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.13	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	0.80	pCi/L	U			RA-05	09/27/17 23:04 / eli-ca
Radium 228 precision (±)	0.90	pCi/L				RA-05	09/27/17 23:04 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	09/27/17 23:04 / eli-ca
Radium 226 + Radium 228	1.0	pCi/L	U			A7500-RA	10/02/17 16:16 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	10/02/17 16:16 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	10/02/17 16:16 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-007
Client Sample ID: SFL MW-6

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 09:55
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	2.7	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.58	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.16	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	1.2	pCi/L	U			RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	3.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-008
Client Sample ID: SFL MW-7

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 10:00
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.69	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	2.7	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	3.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-009
Client Sample ID: SFL MW-5

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 11:05
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	2.8	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.59	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	9.6	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	2.3	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	12.3	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	2.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-010
Client Sample ID: MNW-18

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 11:49
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.8	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.42	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	5.0	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	6.7	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.6	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-011
Client Sample ID: SFL MW-2

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 12:00
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.8	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 precision (±)	0.41	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 226 MDC	0.14	pCi/L				E903.0	09/19/17 08:54 / eli-ca
Radium 228	7.2	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 precision (±)	2.1	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/14/17 13:15 / eli-ca
Radium 226 + Radium 228	9.0	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	2.1	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-012
Client Sample ID: MNW-11

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 13:00
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.40	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 precision (±)	0.15	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 228	1.6	pCi/L	U			RA-05	09/14/17 15:00 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 226 + Radium 228	2.0	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-013
Client Sample ID: MNW-16

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 14:26
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.8	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 precision (±)	0.42	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 228	6.2	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 228 precision (±)	1.7	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 228 MDC	2.2	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 226 + Radium 228	8.0	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.8	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-014
Client Sample ID: SSP/AP MW-1

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 15:50
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.35	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 MDC	0.23	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 228	1.4	pCi/L	U			RA-05	09/14/17 15:00 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 228 MDC	2.9	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 226 + Radium 228	1.7	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-015
Client Sample ID: EQBK-BJG-082317

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 15:25
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.18	pCi/L	U			E903.0	09/19/17 11:04 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 228	-0.4	pCi/L	U			RA-05	09/14/17 15:00 / eli-ca
Radium 228 precision (±)	1.6	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 228 MDC	2.7	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 226 + Radium 228	-0.2	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.6	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.7	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082465-016
Client Sample ID: EQBK/SCM/082317

Revised Date: 10/13/17
Report Date: 09/21/17
Collection Date: 08/23/17 16:20
DateReceived: 08/24/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.25	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 precision (±)	0.17	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	09/19/17 11:04 / eli-ca
Radium 228	1.8	pCi/L	U			RA-05	09/14/17 15:00 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 228 MDC	2.7	pCi/L				RA-05	09/14/17 15:00 / eli-ca
Radium 226 + Radium 228	2.1	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.7	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/11/17
Report Date: 09/20/17
Work Order: B17082465

Client: Texas Municipal Power Agency
Project: CCRR

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8625
Lab ID: LCS-RA226-8625	Laboratory Control Sample				Run: G542M_170904B				09/19/17 08:54
Radium 226	8.7	pCi/L		86	80	120			
Lab ID: MB-RA226-8625	Method Blank				Run: G542M_170904B				09/19/17 08:54
Radium 226	0.06	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17082465-001AMS	Sample Matrix Spike				Run: G542M_170904B				09/19/17 08:54
Radium 226	15	pCi/L		71	70	130			
Lab ID: B17082465-001AMSD	Sample Matrix Spike Duplicate				Run: G542M_170904B				09/19/17 08:54
Radium 226	15	pCi/L		72	70	130	2.3	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/11/17
Report Date: 09/20/17
Work Order: B17082465

Client: Texas Municipal Power Agency
Project: CCRR

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5586
Lab ID: LCS-228-RA226-8625	Laboratory Control Sample				Run: TENNELEC-3_170904B				09/14/17 13:15
Radium 228	10	pCi/L		99	80	120			
Lab ID: MB-RA226-8625	Method Blank				Run: TENNELEC-3_170904B				09/14/17 13:15
Radium 228	0.2	pCi/L							U
Radium 228 precision (±)	1	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: B17082465-002AMS	Sample Matrix Spike				Run: TENNELEC-3_170904B				09/14/17 13:15
Radium 228	23	pCi/L		92	70	130			
Lab ID: B17082465-002AMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170904B				09/14/17 13:15
Radium 228	20	pCi/L		80	70	130	11	20	
Method: RA-05									Batch: RA228-5619
Lab ID: LCS-228-RA228-5619	Laboratory Control Sample				Run: TENNELEC-3_170924B				09/27/17 23:04
Radium 228	9.5	pCi/L		89	80	120			
Lab ID: MB-228-RA228-5619	Method Blank				Run: TENNELEC-3_170924B				09/27/17 23:04
Radium 228	0.8	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C17080768-004CMS	Sample Matrix Spike				Run: TENNELEC-3_170924B				09/27/17 23:04
Radium 228	27	pCi/L		104	70	130			
Lab ID: C17080768-004CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170924B				09/27/17 23:04
Radium 228	24	pCi/L		93	70	130	12	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17082465

Login completed by:	Gina McCartney	Date Received:	8/24/2017
Reviewed by:	BL2000\tedwards	Received by:	se
Reviewed Date:	8/29/2017	Carrier name:	FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 2.5°C, shipping container 2 was 4.0°C, shipping container 3 was 1.0°C, shipping container 4 was 2.8°C and shipping container 5 was 2.0°C.

The collection time indicated on the container label for sample MNW-11 is 12:00 and on the Chain of Custody it is 13:00. Proceeded with the collection time as indicated on the Chain of Custody.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other _____

Comments

Rad Chem on this work order only gm 8-24-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	Energy Laboratories ID (Laboratory Use Only)
1	SFL MW-4	8/22/17	1700	4	W	X	X			B17082465001
2	SFL MW-3		1810							-002
3	EQBK/SCM/0822		1850							-003
4	AP MW-3		1845							-004
5	MNW-15		1715							-005
6	DUP-1	↓	—							-006
7	SFL MW-6	8/23/17	0955							-007
8	SFL MW-7		1000							-008
9	SFL MW-5		1105							-009
10	MNW-18	↓	1149	↓	↓	↓	↓			-010

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	08/23/17 @ 1815	Brian Gieselman			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					8/24/17	Shawn Edgar

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ENERGY
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy, #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email; Receive Report ☐ Hard Copy ☒ Email
Purchase Order / Quote / Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other ____

Comments

RadChem on this work order only gm 8-24-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

#	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SFL MW-2	8/23/17	1200	4	W	X	X			B17082465-011
2	MNW-11	↓	1300	↓	↓	↓	↓			-012
3	MNW-16	↓	1426	↓	↓	↓	↓			-013
4	SSP/AP MW-1	↓	1550	↓	↓	↓	↓			-014
5	EQBK-BJG-082317	↓	1525	↓	↓	↓	↓			-015
6	EQBK/SCM/082317	↓	1620	↓	↓	↓	↓			-016
7										
8										
9										
10										

Custody Record MUST be signed					
Relinquished by (print): Brian Gieselman	Date/Time: 08/23/17 @1815	Signature: [signature]	Received by (print)	Date/Time	Signature
Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time: 0925 8-24-17	Signature: Susan Edgar

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check ____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

December 15, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17082599 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 11 samples for Texas Municipal Power Agency on 8/25/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17082599-001	SSP MW-2	08/24/17 9:30	08/25/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS
B17082599-003	SSP MW-3	08/24/17 10:35	08/25/17	Ground Water	Same As Above
B17082599-004	AP MW-1D	08/24/17 11:00	08/25/17	Ground Water	Same As Above
B17082599-005	SSP MW-4	08/24/17 11:50	08/25/17	Ground Water	Same As Above
B17082599-006	AP MW-5	08/24/17 12:09	08/25/17	Ground Water	Same As Above
B17082599-007	AP MW-4	08/24/17 13:00	08/25/17	Ground Water	Same As Above
B17082599-008	EQBK/SCM/082417	08/24/17 13:30	08/25/17	Ground Water	Same As Above
B17082599-009	EQBK-BJG-082417	08/24/17 13:35	08/25/17	Ground Water	Same As Above
B17082599-010	DUP-2	08/24/17 0:00	08/25/17	Ground Water	Same As Above
B17082599-011	DUP-3	08/24/17 0:00	08/25/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17082599

Revised Date: 12/15/17
Report Date: 09/08/17

CASE NARRATIVE

Revised Report 12/15/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-001
Client Sample ID: SSP MW-2

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 09:30
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	811	mg/L	D	2		E200.7	09/01/17 18:01 / rlh
Magnesium	196	mg/L		1		E200.7	09/01/17 18:01 / rlh
Potassium	57	mg/L		1		E200.7	09/01/17 18:01 / rlh
Sodium	1080	mg/L	D	8		E200.7	09/01/17 18:01 / rlh
PHYSICAL PROPERTIES							
pH	4.7	s.u.	H	0.1		A4500-H B	08/28/17 11:17 / pjw
Solids, Total Dissolved TDS @ 180 C	6910	mg/L	D	90		A2540 C	08/29/17 08:20 / rik
INORGANICS							
Chloride	2790	mg/L	D	10		E300.0	08/31/17 04:17 / cjm
Sulfate	2070	mg/L	D	40		E300.0	08/31/17 04:17 / cjm
Fluoride	0.3	mg/L		0.1		A4500-F C	09/01/17 15:45 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 22:24 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/30/17 22:24 / jpv
Barium	0.06	mg/L		0.01		E200.8	08/30/17 22:24 / jpv
Beryllium	0.040	mg/L		0.001		E200.8	08/30/17 22:24 / jpv
Boron	0.45	mg/L		0.05		E200.8	09/01/17 03:45 / jpv
Cadmium	ND	mg/L		0.005		E200.8	08/30/17 22:24 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 22:24 / jpv
Cobalt	0.06	mg/L		0.02		E200.8	08/30/17 22:24 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 22:24 / jpv
Lithium	0.67	mg/L	D	0.09		E200.7	09/01/17 18:01 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 11:53 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 22:24 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 22:24 / jpv
Thallium	ND	mg/L		0.002		E200.8	09/01/17 03:45 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-003
Client Sample ID: SSP MW-3

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 10:35
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	646	mg/L		1		E200.7	09/01/17 18:28 / rlh
Magnesium	169	mg/L		1		E200.7	09/01/17 18:28 / rlh
Potassium	47	mg/L		1		E200.7	09/01/17 18:28 / rlh
Sodium	1020	mg/L	D	4		E200.7	09/01/17 18:28 / rlh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	08/28/17 11:22 / pjw
Solids, Total Dissolved TDS @ 180 C	6260	mg/L	D	90		A2540 C	08/29/17 08:20 / rik
INORGANICS							
Chloride	1790	mg/L	D	6		E300.0	08/31/17 05:35 / cjm
Sulfate	2510	mg/L	D	20		E300.0	08/31/17 05:35 / cjm
Fluoride	0.8	mg/L		0.1		A4500-F C	09/05/17 13:06 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 22:55 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/30/17 22:55 / jpv
Barium	0.03	mg/L		0.01		E200.8	08/30/17 22:55 / jpv
Beryllium	0.113	mg/L		0.001		E200.8	08/30/17 22:55 / jpv
Boron	2.59	mg/L		0.05		E200.7	09/01/17 18:28 / rlh
Cadmium	0.078	mg/L		0.005		E200.8	08/30/17 22:55 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 22:55 / jpv
Cobalt	0.58	mg/L		0.02		E200.8	08/30/17 22:55 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 22:55 / jpv
Lithium	0.53	mg/L	D	0.04		E200.7	09/01/17 18:28 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 11:57 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 22:55 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 22:55 / jpv
Thallium	0.008	mg/L		0.002		E200.8	09/01/17 04:15 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-004
Client Sample ID: AP MW-1D

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 11:00
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	70	mg/L		1		E200.7	09/01/17 18:32 / rlh
Magnesium	13	mg/L		1		E200.7	09/01/17 18:32 / rlh
Potassium	11	mg/L		1		E200.7	09/01/17 18:32 / rlh
Sodium	290	mg/L		1		E200.7	09/01/17 18:32 / rlh
PHYSICAL PROPERTIES							
pH	6.3	s.u.	H	0.1		A4500-H B	08/28/17 11:25 / pjw
Solids, Total Dissolved TDS @ 180 C	1270	mg/L	D	20		A2540 C	08/29/17 08:21 / rik
INORGANICS							
Chloride	227	mg/L		1		E300.0	08/31/17 06:33 / cjm
Sulfate	517	mg/L	D	4		E300.0	08/31/17 06:33 / cjm
Fluoride	0.8	mg/L		0.1		A4500-F C	09/05/17 13:27 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 22:58 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	08/30/17 22:58 / jpv
Barium	0.01	mg/L		0.01		E200.8	08/30/17 22:58 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/30/17 22:58 / jpv
Boron	4.28	mg/L		0.05		E200.7	09/01/17 18:32 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/30/17 22:58 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 22:58 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/30/17 22:58 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 22:58 / jpv
Lithium	0.01	mg/L		0.01		E200.7	09/01/17 18:32 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:10 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 22:58 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 22:58 / jpv
Thallium	ND	mg/L		0.002		E200.8	09/01/17 04:19 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-005
Client Sample ID: SSP MW-4

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 11:50
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	365	mg/L		1		E200.7	09/01/17 18:35 / rlh
Magnesium	79	mg/L		1		E200.7	09/01/17 18:35 / rlh
Potassium	52	mg/L		1		E200.7	09/01/17 18:35 / rlh
Sodium	677	mg/L	D	4		E200.7	09/01/17 18:35 / rlh
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	08/28/17 11:27 / pjw
Solids, Total Dissolved TDS @ 180 C	3630	mg/L	D	40		A2540 C	08/29/17 08:21 / rik
INORGANICS							
Chloride	1190	mg/L	D	6		E300.0	08/31/17 06:53 / cjm
Sulfate	1170	mg/L	D	20		E300.0	08/31/17 06:53 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/05/17 13:30 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 23:01 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/30/17 23:01 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/30/17 23:01 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/30/17 23:01 / jpv
Boron	1.15	mg/L		0.05		E200.7	09/01/17 18:35 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/30/17 23:01 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 23:01 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/30/17 23:01 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 23:01 / jpv
Lithium	0.78	mg/L	D	0.04		E200.7	09/01/17 18:35 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:16 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 23:01 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 23:01 / jpv
Thallium	ND	mg/L		0.002		E200.8	09/01/17 04:22 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-006
Client Sample ID: AP MW-5

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 12:09
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	498	mg/L		1		E200.7	09/01/17 18:39 / rlh
Magnesium	114	mg/L		1		E200.7	09/01/17 18:39 / rlh
Potassium	44	mg/L		1		E200.7	09/01/17 18:39 / rlh
Sodium	651	mg/L	D	4		E200.7	09/01/17 18:39 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	08/28/17 11:33 / pjw
Solids, Total Dissolved TDS @ 180 C	4720	mg/L	D	40		A2540 C	08/29/17 08:21 / rik
INORGANICS							
Chloride	473	mg/L	D	6		E300.0	08/31/17 07:12 / cjm
Sulfate	2960	mg/L	D	20		E300.0	08/31/17 07:12 / cjm
Fluoride	1.2	mg/L		0.1		A4500-F C	09/05/17 13:42 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 23:05 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	08/30/17 23:05 / jpv
Barium	0.01	mg/L		0.01		E200.8	08/30/17 23:05 / jpv
Beryllium	0.084	mg/L		0.001		E200.8	08/30/17 23:05 / jpv
Boron	3.26	mg/L		0.05		E200.7	09/01/17 18:39 / rlh
Cadmium	0.010	mg/L		0.005		E200.8	08/30/17 23:05 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 23:05 / jpv
Cobalt	0.18	mg/L		0.02		E200.8	08/30/17 23:05 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 23:05 / jpv
Lithium	0.45	mg/L	D	0.04		E200.7	09/01/17 18:39 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:18 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 23:05 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 23:05 / jpv
Thallium	0.002	mg/L		0.002		E200.8	09/01/17 04:26 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-007
Client Sample ID: AP MW-4

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 13:00
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	489	mg/L		1		E200.7	09/01/17 18:43 / rlh
Magnesium	118	mg/L		1		E200.7	09/01/17 18:43 / rlh
Potassium	46	mg/L		1		E200.7	09/01/17 18:43 / rlh
Sodium	510	mg/L	D	2		E200.7	09/01/17 18:43 / rlh
PHYSICAL PROPERTIES							
pH	6.0	s.u.	H	0.1		A4500-H B	08/28/17 11:35 / pjw
Solids, Total Dissolved TDS @ 180 C	4000	mg/L	D	40		A2540 C	08/29/17 08:21 / rik
INORGANICS							
Chloride	543	mg/L	D	3		E300.0	08/31/17 07:32 / cjm
Sulfate	2500	mg/L	D	9		E300.0	08/31/17 07:32 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/05/17 13:45 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 23:08 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/30/17 23:08 / jpv
Barium	0.02	mg/L		0.01		E200.8	08/30/17 23:08 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/30/17 23:08 / jpv
Boron	1.96	mg/L		0.05		E200.7	09/01/17 18:43 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/30/17 23:08 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 23:08 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/30/17 23:08 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 23:08 / jpv
Lithium	0.85	mg/L	D	0.02		E200.7	09/01/17 18:43 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:20 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 23:08 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 23:08 / jpv
Thallium	ND	mg/L		0.002		E200.8	09/01/17 04:29 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-008
Client Sample ID: EQBK/SCM/082417

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 13:30
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	09/01/17 18:53 / rlh
Magnesium	ND	mg/L		1		E200.7	09/01/17 18:53 / rlh
Potassium	ND	mg/L		1		E200.7	09/01/17 18:53 / rlh
Sodium	ND	mg/L		1		E200.7	09/01/17 18:53 / rlh
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	08/28/17 11:38 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/29/17 08:22 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	08/31/17 07:51 / cjm
Sulfate	ND	mg/L		1		E300.0	08/31/17 07:51 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/05/17 13:54 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 23:22 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/30/17 23:22 / jpv
Barium	ND	mg/L		0.01		E200.8	08/30/17 23:22 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/30/17 23:22 / jpv
Boron	ND	mg/L		0.05		E200.7	09/01/17 18:53 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/30/17 23:22 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 23:22 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/30/17 23:22 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 23:22 / jpv
Lithium	ND	mg/L		0.01		E200.7	09/01/17 18:53 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:22 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 23:22 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 23:22 / jpv
Thallium	ND	mg/L		0.002		E200.8	09/01/17 04:33 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-009
Client Sample ID: EQBK-BJG-082417

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17 13:35
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	09/01/17 18:56 / rlh
Magnesium	ND	mg/L		1		E200.7	09/01/17 18:56 / rlh
Potassium	ND	mg/L		1		E200.7	09/01/17 18:56 / rlh
Sodium	ND	mg/L		1		E200.7	09/01/17 18:56 / rlh
PHYSICAL PROPERTIES							
pH	5.9	s.u.	H	0.1		A4500-H B	08/28/17 11:40 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/29/17 08:22 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	08/31/17 08:11 / cjm
Sulfate	ND	mg/L		1		E300.0	08/31/17 08:11 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/05/17 14:00 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 23:25 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/30/17 23:25 / jpv
Barium	ND	mg/L		0.01		E200.8	08/30/17 23:25 / jpv
Beryllium	ND	mg/L		0.001		E200.8	08/30/17 23:25 / jpv
Boron	ND	mg/L		0.05		E200.7	09/01/17 18:56 / rlh
Cadmium	ND	mg/L		0.005		E200.8	08/30/17 23:25 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 23:25 / jpv
Cobalt	ND	mg/L		0.02		E200.8	08/30/17 23:25 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 23:25 / jpv
Lithium	ND	mg/L		0.01		E200.7	09/01/17 18:56 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:24 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 23:25 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 23:25 / jpv
Thallium	ND	mg/L		0.002		E200.8	09/01/17 04:36 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-010
Client Sample ID: DUP-2

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	661	mg/L		1		E200.7	09/01/17 19:00 / rlh
Magnesium	172	mg/L		1		E200.7	09/01/17 19:00 / rlh
Potassium	47	mg/L		1		E200.7	09/01/17 19:00 / rlh
Sodium	1030	mg/L	D	4		E200.7	09/01/17 19:00 / rlh
PHYSICAL PROPERTIES							
pH	4.5	s.u.	H	0.1		A4500-H B	08/28/17 11:43 / pjw
Solids, Total Dissolved TDS @ 180 C	6100	mg/L	D	90		A2540 C	08/29/17 08:22 / rik
INORGANICS							
Chloride	1840	mg/L	D	6		E300.0	08/31/17 08:30 / cjm
Sulfate	2570	mg/L	D	20		E300.0	08/31/17 08:30 / cjm
Fluoride	0.8	mg/L		0.1		A4500-F C	09/05/17 14:09 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 23:29 / jpv
Arsenic	ND	mg/L		0.01		E200.8	08/30/17 23:29 / jpv
Barium	0.03	mg/L		0.01		E200.8	08/30/17 23:29 / jpv
Beryllium	0.112	mg/L		0.001		E200.8	08/30/17 23:29 / jpv
Boron	2.70	mg/L		0.05		E200.7	09/01/17 19:00 / rlh
Cadmium	0.075	mg/L		0.005		E200.8	08/30/17 23:29 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 23:29 / jpv
Cobalt	0.57	mg/L		0.02		E200.8	08/30/17 23:29 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 23:29 / jpv
Lithium	0.55	mg/L	D	0.04		E200.7	09/01/17 19:00 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:26 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 23:29 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 23:29 / jpv
Thallium	0.007	mg/L		0.002		E200.8	09/01/17 04:40 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082599-011
Client Sample ID: DUP-3

Revised Date: 12/15/17
Report Date: 09/08/17
Collection Date: 08/24/17
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	496	mg/L		1		E200.7	09/01/17 19:04 / rlh
Magnesium	112	mg/L		1		E200.7	09/01/17 19:04 / rlh
Potassium	41	mg/L		1		E200.7	09/01/17 19:04 / rlh
Sodium	638	mg/L	D	4		E200.7	09/01/17 19:04 / rlh
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	08/28/17 11:45 / pjw
Solids, Total Dissolved TDS @ 180 C	4670	mg/L	D	40		A2540 C	08/29/17 08:22 / rik
INORGANICS							
Chloride	471	mg/L	D	6		E300.0	08/31/17 09:29 / cjm
Sulfate	2940	mg/L	D	20		E300.0	08/31/17 09:29 / cjm
Fluoride	1.2	mg/L		0.1		A4500-F C	09/05/17 14:21 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	08/30/17 23:32 / jpv
Arsenic	0.01	mg/L		0.01		E200.8	08/30/17 23:32 / jpv
Barium	0.01	mg/L		0.01		E200.8	08/30/17 23:32 / jpv
Beryllium	0.085	mg/L		0.001		E200.8	08/30/17 23:32 / jpv
Boron	3.31	mg/L		0.05		E200.7	09/01/17 19:04 / rlh
Cadmium	0.010	mg/L		0.005		E200.8	08/30/17 23:32 / jpv
Chromium	ND	mg/L		0.01		E200.8	08/30/17 23:32 / jpv
Cobalt	0.18	mg/L		0.02		E200.8	08/30/17 23:32 / jpv
Lead	ND	mg/L		0.01		E200.8	08/30/17 23:32 / jpv
Lithium	0.43	mg/L	D	0.04		E200.7	09/01/17 19:04 / rlh
Mercury	ND	mg/L		0.001		E245.1	08/29/17 12:27 / jh
Molybdenum	ND	mg/L		0.05		E200.8	08/30/17 23:32 / jpv
Selenium	ND	mg/L		0.01		E200.8	08/30/17 23:32 / jpv
Thallium	0.002	mg/L		0.002		E200.8	09/01/17 04:53 / jpv

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170901A	
Lab ID: ICV	6	Continuing Calibration Verification Standard							09/01/17 12:41	
Boron		2.48	mg/L	0.10	99	95	105			
Calcium		25.9	mg/L	1.0	104	95	105			
Lithium		1.29	mg/L	0.10	104	95	105			
Magnesium		25.3	mg/L	1.0	101	95	105			
Potassium		25.7	mg/L	1.0	103	95	105			
Sodium		25.8	mg/L	1.0	103	95	105			
Method: E200.7									Batch: 113054	
Lab ID: MB-113054	6	Method Blank				Run: ICP203-B_170901A			09/01/17 17:32	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Lab ID: LCS-113054	6	Laboratory Control Sample				Run: ICP203-B_170901A			09/01/17 17:36	
Boron		0.473	mg/L	0.10	95	85	115			
Calcium		25.7	mg/L	1.0	103	85	115			
Lithium		0.499	mg/L	0.10	100	85	115			
Magnesium		26.4	mg/L	1.0	105	85	115			
Potassium		25.2	mg/L	1.0	101	85	115			
Sodium		25.7	mg/L	1.0	103	85	115			
Lab ID: B17082663-006BMS3	6	Sample Matrix Spike				Run: ICP203-B_170901A			09/01/17 17:54	
Boron		0.459	mg/L	0.050	92	70	130			
Calcium		159	mg/L	1.0		70	130			A
Lithium		0.515	mg/L	0.10	103	70	130			
Magnesium		101	mg/L	1.0	96	70	130			
Potassium		28.6	mg/L	1.0	103	70	130			
Sodium		29.0	mg/L	1.0	99	70	130			
Lab ID: B17082663-006BMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_170901A			09/01/17 17:57	
Boron		0.446	mg/L	0.050	89	70	130	3.0	20	
Calcium		157	mg/L	1.0		70	130	1.0	20	A
Lithium		0.488	mg/L	0.10	98	70	130	5.3	20	
Magnesium		101	mg/L	1.0	95	70	130	0.2	20	
Potassium		27.0	mg/L	1.0	96	70	130	5.9	20	
Sodium		28.1	mg/L	1.0	95	70	130	3.0	20	
Lab ID: B17082599-001BMS3	6	Sample Matrix Spike				Run: ICP203-B_170901A			09/01/17 18:18	
Boron		0.939	mg/L	0.068	116	70	130			
Calcium		864	mg/L	1.6		70	130			A
Lithium		1.18	mg/L	0.10	102	70	130			
Magnesium		232	mg/L	1.5		70	130			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Batch: 113054	
Lab ID: **B17082599-001BMS3**	6	Sample Matrix Spike				Run: ICP203-B_170901A			09/01/17 18:18	
Potassium		83.5	mg/L	1.4	107	70	130			
Sodium		1150	mg/L	8.4		70	130			A
Lab ID: **B17082599-001BMSD**	6	Sample Matrix Spike Duplicate				Run: ICP203-B_170901A			09/01/17 18:21	
Boron		0.843	mg/L	0.068	96	70	130	11	20	
Calcium		833	mg/L	1.6		70	130	3.7	20	A
Lithium		1.16	mg/L	0.10	98	70	130	1.8	20	
Magnesium		223	mg/L	1.5		70	130	3.7	20	A
Potassium		80.8	mg/L	1.4	97	70	130	3.3	20	
Sodium		1110	mg/L	8.4		70	130	3.2	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170831A	
Lab ID: QCS	10	Initial Calibration Verification Standard								08/30/17 17:30
Antimony		0.0523	mg/L	0.050	105	90	110			
Arsenic		0.0510	mg/L	0.0050	102	90	110			
Barium		0.0512	mg/L	0.10	102	90	110			
Beryllium		0.0260	mg/L	0.0010	104	90	110			
Cadmium		0.0264	mg/L	0.0010	106	90	110			
Chromium		0.0522	mg/L	0.010	104	90	110			
Cobalt		0.0529	mg/L	0.010	106	90	110			
Lead		0.0503	mg/L	0.010	101	90	110			
Molybdenum		0.0494	mg/L	0.0050	99	90	110			
Selenium		0.0504	mg/L	0.0050	101	90	110			
Method: E200.8										Batch: 113054
Lab ID: MB-113054	12	Method Blank				Run: ICPMS206-B_170831A				08/30/17 22:20
Antimony		0.00009	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Boron		0.09	mg/L	0.003						
Cadmium		ND	mg/L	0.00003						
Chromium		0.0008	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	7E-06						
Lab ID: LCS-113054	12	Laboratory Control Sample				Run: ICPMS206-B_170831A				08/30/17 22:37
Antimony		0.564	mg/L	0.0050	113	85	115			
Arsenic		0.528	mg/L	0.0010	106	85	115			
Barium		0.524	mg/L	0.010	105	85	115			
Beryllium		0.245	mg/L	0.0010	98	85	115			
Boron		0.596	mg/L	0.10	100	85	115			
Cadmium		0.272	mg/L	0.0010	109	85	115			
Chromium		0.506	mg/L	0.0010	101	85	115			
Cobalt		0.524	mg/L	0.0010	105	85	115			
Lead		0.516	mg/L	0.0010	103	85	115			
Molybdenum		0.508	mg/L	0.0050	102	85	115			
Selenium		0.505	mg/L	0.0050	101	85	115			
Thallium		0.568	mg/L	0.0010	114	85	115			
Lab ID: B17082599-001BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_170831A				08/30/17 22:41
Antimony		0.520	mg/L	0.0010	104	70	130			
Arsenic		0.550	mg/L	0.0010	109	70	130			
Barium		0.554	mg/L	0.050	100	70	130			
Beryllium		0.276	mg/L	0.0010	94	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 113054
Lab ID: B17082599-001BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_170831A				08/30/17 22:41
Boron		1.50	mg/L	0.050	82	70	130			
Cadmium		0.270	mg/L	0.0010	108	70	130			
Chromium		0.509	mg/L	0.0050	101	70	130			
Cobalt		0.550	mg/L	0.0050	98	70	130			
Lead		0.490	mg/L	0.0010	97	70	130			
Molybdenum		0.501	mg/L	0.0010	100	70	130			
Selenium		0.502	mg/L	0.0018	100	70	130			
Thallium		0.441	mg/L	0.00050	88	70	130			
Lab ID: B17082599-001BMSD	12	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170831A				08/30/17 22:44
Antimony		0.514	mg/L	0.0010	103	70	130	1.2	20	
Arsenic		0.567	mg/L	0.0010	112	70	130	3.1	20	
Barium		0.569	mg/L	0.050	103	70	130	2.8	20	
Beryllium		0.286	mg/L	0.0010	98	70	130	3.8	20	
Boron		1.49	mg/L	0.050	80	70	130	0.6	20	
Cadmium		0.276	mg/L	0.0010	110	70	130	2.2	20	
Chromium		0.536	mg/L	0.0050	107	70	130	5.3	20	
Cobalt		0.568	mg/L	0.0050	102	70	130	3.2	20	
Lead		0.520	mg/L	0.0010	104	70	130	6.0	20	
Molybdenum		0.491	mg/L	0.0010	98	70	130	2.1	20	
Selenium		0.530	mg/L	0.0018	106	70	130	5.5	20	
Thallium		0.467	mg/L	0.00050	93	70	130	5.9	20	
Lab ID: B17082663-006BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_170831A				08/31/17 00:10
Antimony		0.557	mg/L	0.0010	111	70	130			
Arsenic		0.528	mg/L	0.0010	106	70	130			
Barium		0.578	mg/L	0.050	105	70	130			
Beryllium		0.236	mg/L	0.0010	94	70	130			
Boron		0.528	mg/L	0.050	105	70	130			
Cadmium		0.274	mg/L	0.0010	110	70	130			
Chromium		0.525	mg/L	0.0050	105	70	130			
Cobalt		0.504	mg/L	0.0050	101	70	130			
Lead		0.522	mg/L	0.0010	104	70	130			
Molybdenum		0.504	mg/L	0.0010	100	70	130			
Selenium		0.511	mg/L	0.0010	102	70	130			
Thallium		0.574	mg/L	0.00050	115	70	130			
Lab ID: B17082663-006BMSD	12	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170831A				08/31/17 00:13
Antimony		0.556	mg/L	0.0010	111	70	130	0.2	20	
Arsenic		0.517	mg/L	0.0010	103	70	130	2.0	20	
Barium		0.576	mg/L	0.050	104	70	130	0.3	20	
Beryllium		0.237	mg/L	0.0010	95	70	130	0.7	20	
Boron		0.547	mg/L	0.050	109	70	130	3.5	20	
Cadmium		0.268	mg/L	0.0010	107	70	130	2.3	20	
Chromium		0.514	mg/L	0.0050	103	70	130	2.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 113054
Lab ID: **B17082663-006BMSD**	12	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170831A				08/31/17 00:13
Cobalt		0.510	mg/L	0.0050	102	70	130	1.3	20	
Lead		0.513	mg/L	0.0010	103	70	130	1.7	20	
Molybdenum		0.508	mg/L	0.0010	101	70	130	0.8	20	
Selenium		0.513	mg/L	0.0010	103	70	130	0.3	20	
Thallium		0.561	mg/L	0.00050	112	70	130	2.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170831B	
Lab ID: QCS	2	Initial Calibration Verification Standard							08/31/17 23:28	
Boron		0.0483	mg/L	0.10	97	90	110			
Thallium		0.0502	mg/L	0.10	100	90	110			
Method: E200.8									Batch: 113054	
Lab ID: MB-113054	12	Method Blank				Run: ICPMS206-B_170831B			09/01/17 03:41	
Antimony		0.00009	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.00003						
Chromium		0.0007	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		0.00003	mg/L	0.00003						
Molybdenum		0.0001	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00004	mg/L	7E-06						
Lab ID: LCS-113054	12	Laboratory Control Sample				Run: ICPMS206-B_170831B			09/01/17 03:48	
Antimony		0.564	mg/L	0.0010	113	85	115			
Arsenic		0.517	mg/L	0.0010	103	85	115			
Barium		0.536	mg/L	0.050	107	85	115			
Beryllium		0.251	mg/L	0.0010	100	85	115			
Boron		0.502	mg/L	0.050	100	85	115			
Cadmium		0.263	mg/L	0.0010	105	85	115			
Chromium		0.522	mg/L	0.0050	104	85	115			
Cobalt		0.532	mg/L	0.0050	106	85	115			
Lead		0.530	mg/L	0.0010	106	85	115			
Molybdenum		0.505	mg/L	0.0010	101	85	115			
Selenium		0.521	mg/L	0.0010	104	85	115			
Thallium		0.531	mg/L	0.00050	106	85	115			
Lab ID: B17082599-001BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_170831B			09/01/17 03:52	
Antimony		0.531	mg/L	0.0010	106	70	130			
Arsenic		0.538	mg/L	0.0016	107	70	130			
Barium		0.562	mg/L	0.050	100	70	130			
Beryllium		0.285	mg/L	0.0010	96	70	130			
Boron		1.01	mg/L	0.050	113	70	130			
Cadmium		0.269	mg/L	0.0010	108	70	130			
Chromium		0.537	mg/L	0.0050	107	70	130			
Cobalt		0.573	mg/L	0.0050	101	70	130			
Lead		0.516	mg/L	0.0010	103	70	130			
Molybdenum		0.504	mg/L	0.0010	100	70	130			
Selenium		0.526	mg/L	0.0036	105	70	130			
Thallium		0.420	mg/L	0.00050	84	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 113054
Lab ID: B17082599-001BMS3	12	Sample Matrix Spike				Run: ICPMS206-B_170831B				09/01/17 03:52
Lab ID: B17082599-001BMSD	12	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170831B				09/01/17 03:55
Antimony		0.537	mg/L	0.0010	107	70	130	1.1	20	
Arsenic		0.564	mg/L	0.0016	112	70	130	4.8	20	
Barium		0.609	mg/L	0.050	110	70	130	8.0	20	
Beryllium		0.300	mg/L	0.0010	102	70	130	5.1	20	
Boron		1.00	mg/L	0.050	111	70	130	1.1	20	
Cadmium		0.278	mg/L	0.0010	111	70	130	3.3	20	
Chromium		0.557	mg/L	0.0050	111	70	130	3.8	20	
Cobalt		0.604	mg/L	0.0050	108	70	130	5.4	20	
Lead		0.541	mg/L	0.0010	107	70	130	4.7	20	
Molybdenum		0.512	mg/L	0.0010	102	70	130	1.6	20	
Selenium		0.560	mg/L	0.0036	112	70	130	6.3	20	
Thallium		0.446	mg/L	0.00050	89	70	130	6.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/07/17

Project: CCRR **Work Order:** B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170829A	
Lab ID: **ICV**		Initial Calibration Verification Standard							08/29/17 09:26	
Mercury		0.00190	mg/L	0.00010	95	90	110			
Method: **E245.1**									Batch: 113075	
Lab ID: **MB-113075**		Method Blank				Run: HGCV202-B_170829A			08/29/17 11:06	
Mercury		0.00001	mg/L	1E-06						
Lab ID: **LCS-113075**		Laboratory Control Sample				Run: HGCV202-B_170829A			08/29/17 11:08	
Mercury		0.00203	mg/L	0.00010	101	85	115			
Lab ID: **B17082668-005BMS**		Sample Matrix Spike				Run: HGCV202-B_170829A			08/29/17 11:15	
Mercury		0.00200	mg/L	0.00010	99	70	130			
Lab ID: **B17082668-005BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170829A			08/29/17 11:17	
Mercury		0.00200	mg/L	0.00010	99	70	130	0.0	30	
Lab ID: **B17082599-003BMS**		Sample Matrix Spike				Run: HGCV202-B_170829A			08/29/17 13:18	
Mercury		0.00192	mg/L	0.00010	92	70	130			
Lab ID: **B17082599-003BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170829A			08/29/17 13:20	
Mercury		0.00193	mg/L	0.00010	93	70	130	0.6	30	
Method: **E245.1**									Batch: 113077	
Lab ID: **MB-113077**		Method Blank				Run: HGCV202-B_170829A			08/29/17 12:03	
Mercury		4E-06	mg/L	1E-06						
Lab ID: **LCS-113077**		Laboratory Control Sample				Run: HGCV202-B_170829A			08/29/17 12:05	
Mercury		0.00209	mg/L	0.00010	104	85	115			
Lab ID: **B17082599-004BMS**		Sample Matrix Spike				Run: HGCV202-B_170829A			08/29/17 12:12	
Mercury		0.00178	mg/L	0.00010	88	70	130			
Lab ID: **B17082599-004BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170829A			08/29/17 12:14	
Mercury		0.00180	mg/L	0.00010	89	70	130	1.2	30	
Lab ID: **B17082614-002BMS**		Sample Matrix Spike				Run: HGCV202-B_170829A			08/29/17 12:43	
Mercury		0.00228	mg/L	0.00010	113	70	130			
Lab ID: **B17082614-002BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170829A			08/29/17 12:45	
Mercury		0.00226	mg/L	0.00010	112	70	130	0.6	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/06/17
Project: CCRR
Work Order: B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 113120
Lab ID: MB-113120		Method Blank				Run: BAL #SD-15_170829A				08/29/17 08:18
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-113120		Laboratory Control Sample				Run: BAL #SD-15_170829A				08/29/17 08:19
Solids, Total Dissolved TDS @ 180 C		991	mg/L	10	99	90	110			
Lab ID: B17082598-008A DUP		Sample Duplicate				Run: BAL #SD-15_170829A				08/29/17 08:19
Solids, Total Dissolved TDS @ 180 C		2390	mg/L	20				0.1	5	
Lab ID: B17082599-006A DUP		Sample Duplicate				Run: BAL #SD-15_170829A				08/29/17 08:21
Solids, Total Dissolved TDS @ 180 C		4650	mg/L	39				1.5	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/06/17
Project: CCRR
Work Order: B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170901A	
Lab ID: **ICV**		Initial Calibration Verification Standard							09/01/17 15:08	
Fluoride		1.02	mg/L	0.10	102	90	110			
Method: **A4500-F C**									Batch: R286042	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170901A			09/01/17 15:06	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170901A			09/01/17 15:11	
Fluoride		1.05	mg/L	0.10	105	90	110			
Lab ID: **B17082598-005AMS**		Sample Matrix Spike				Run: MAN-TECH_170901A			09/01/17 15:16	
Fluoride		1.59	mg/L	0.10	106	80	120			
Lab ID: **B17082598-005AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170901A			09/01/17 15:19	
Fluoride		1.56	mg/L	0.10	103	80	120	1.9	10	
Lab ID: **B17082599-011AMS**		Sample Matrix Spike				Run: MAN-TECH_170901A			09/01/17 17:17	
Fluoride		1.47	mg/L	0.10	37	80	120			S
Lab ID: **B17082599-011AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170901A			09/01/17 17:29	
Fluoride		1.47	mg/L	0.10	37	80	120	0.0	10	S
Method: **A4500-F C**									Analytical Run: MAN-TECH_170905A	
Lab ID: **ICV**		Initial Calibration Verification Standard							09/05/17 12:55	
Fluoride		1.05	mg/L	0.10	105	90	110			
Method: **A4500-F C**									Batch: R286127	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170905A			09/05/17 12:53	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170905A			09/05/17 12:58	
Fluoride		1.08	mg/L	0.10	108	90	110			
Lab ID: **B17082599-003AMS**		Sample Matrix Spike				Run: MAN-TECH_170905A			09/05/17 13:15	
Fluoride		1.60	mg/L	0.10	82	80	120			
Lab ID: **B17082599-003AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170905A			09/05/17 13:24	
Fluoride		1.62	mg/L	0.10	84	80	120	1.2	10	
Lab ID: **B17082614-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170905A			09/05/17 14:26	
Fluoride		1.25	mg/L	0.10	101	80	120			
Lab ID: **B17082614-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170905A			09/05/17 14:29	
Fluoride		1.27	mg/L	0.10	103	80	120	1.6	10	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/06/17
Project: CCRR
Work Order: B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170828A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								08/28/17 08:36	
pH		7.97	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R285634	
Lab ID: **B17082599-005ADUP**	Sample Duplicate					Run: PHSC _101-B_170828A			08/28/17 11:30	
pH		6.53	s.u.	0.10				0.2	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/06/17
Project: CCRR
Work Order: B17082599

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**									Analytical Run: IC METROHM 2_170830A	
Lab ID: **ICV**	2	Initial Calibration Verification Standard							08/30/17 17:14	
Chloride		2.17	mg/L	1.0	96	90	110			
Sulfate		8.85	mg/L	1.0	98	90	110			
Method: **E300.0**									Batch: R285893	
Lab ID: **ICB**	2	Method Blank				Run: IC METROHM 2_170830A			08/30/17 17:33	
Chloride		0.04	mg/L	0.03						
Sulfate		ND	mg/L	0.02						
Lab ID: **LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_170830A			08/30/17 17:53	
Chloride		10.5	mg/L	1.0	104	90	110			
Sulfate		31.2	mg/L	1.0	104	90	110			
Lab ID: **B17082599-001AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170830A			08/31/17 04:36	
Chloride		4840	mg/L	12	103	90	110			
Sulfate		8560	mg/L	37	108	90	110			
Lab ID: **B17082599-001AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170830A			08/31/17 04:56	
Chloride		4830	mg/L	12	102	90	110	0.1	20	
Sulfate		8580	mg/L	37	108	90	110	0.3	20	
Lab ID: **B17082599-010AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_170830A			08/31/17 08:50	
Chloride		2820	mg/L	6.1	98	90	110			
Sulfate		5700	mg/L	18	104	90	110			
Lab ID: **B17082599-010AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_170830A			08/31/17 09:09	
Chloride		2800	mg/L	6.1	96	90	110	0.6	20	
Sulfate		5670	mg/L	18	103	90	110	0.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency

B17082599

Login completed by:	Gina McCartney	Date Received:	8/25/2017
Reviewed by:	BL2000\tedwards	Received by:	se
Reviewed Date:	8/31/2017	Carrier name:	FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The temperature of the sample(s) for shipping container 1 was 2.0°C, shipping container 2 was 1.1°C, shipping container 3 was 1.7°C and shipping container 4 was 4.4°C.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

All analysis except Rad Chem on this workorder gm 8-25-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELT LAB ID (Laboratory Use Only)
1	SSP MW-2	8/24/17	0930	4	W	X	X			B1708259001
2	AP MW-6		0942							-002
3	SSP MW-3		1035							-003
4	AP MW-1D		1100							-004
5	SSP MW-4		1150							-005
6	AP MW-5		1209							-006
7	AP MW-4		1300							-007
8	EQBK/SCM/082417		1330							-008
9	EQBK-BJG-082417		1335							-009
10	DUP-2		—							-010

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	08/24/17 @ 1600	Brian Gieselman			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					8/25/17 9:20	Shawn Edgar

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy, #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	DUP-3	8/24/17	—	4	W	X	X			B1708259011
2										
3										
4										
5										
6										
7										
8										
9										
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Brian Gieselman	08/24/17 @1600	Brian Gieselman			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	8/25 9:30	Shawn Edgar

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

September 21, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17082605 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 11 samples for Texas Municipal Power Agency on 8/25/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17082605-001	SSP MW-2	08/24/17 9:30	08/25/17	Ground Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
B17082605-003	SSP MW-3	08/24/17 10:35	08/25/17	Ground Water	Same As Above
B17082605-004	AP MW-1D	08/24/17 11:00	08/25/17	Ground Water	Same As Above
B17082605-005	SSP MW-4	08/24/17 11:50	08/25/17	Ground Water	Same As Above
B17082605-006	AP MW-5	08/24/17 12:09	08/25/17	Ground Water	Same As Above
B17082605-007	AP MW-4	08/24/17 13:00	08/25/17	Ground Water	Same As Above
B17082605-008	EQBK/SCM/082417	08/24/17 13:30	08/25/17	Ground Water	Same As Above
B17082605-009	EQBK-BJG-082417	08/24/17 13:35	08/25/17	Ground Water	Same As Above
B17082605-010	DUP-2	08/24/17 0:00	08/25/17	Ground Water	Same As Above
B17082605-011	DUP-3	08/24/17 0:00	08/25/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17082605

Report Date: 09/21/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-001
Client Sample ID: SSP MW-2

Report Date: 09/21/17
Collection Date: 08/24/17 09:30
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.80	pCi/L				E903.0	09/18/17 11:23 / eli-ca
Radium 226 precision (±)	0.19	pCi/L				E903.0	09/18/17 11:23 / eli-ca
Radium 226 MDC	0.16	pCi/L				E903.0	09/18/17 11:23 / eli-ca
Radium 228	3.5	pCi/L				RA-05	09/12/17 12:04 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	09/12/17 12:04 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	09/12/17 12:04 / eli-ca
Radium 226 + Radium 228	4.3	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-002
Client Sample ID: AP MW-6

Report Date: 09/21/17
Collection Date: 08/24/17 09:42
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.64	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 precision (±)	0.17	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 228	0.70	pCi/L	U			RA-05	09/12/17 13:37 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 226 + Radium 228	1.3	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.0	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-003
Client Sample ID: SSP MW-3

Report Date: 09/21/17
Collection Date: 08/24/17 10:35
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	7.2	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 precision (±)	1.4	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 228	25	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 228 precision (±)	4.7	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 226 + Radium 228	32.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	4.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-004
Client Sample ID: AP MW-1D

Report Date: 09/21/17
Collection Date: 08/24/17 11:00
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.52	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 228	1.3	pCi/L	U			RA-05	09/12/17 13:37 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 226 + Radium 228	1.8	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.0	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-005
Client Sample ID: SSP MW-4

Report Date: 09/21/17
Collection Date: 08/24/17 11:50
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.3	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 precision (±)	0.34	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 MDC	0.15	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 228	1.4	pCi/L	U			RA-05	09/12/17 13:37 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 228 MDC	2.0	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 226 + Radium 228	2.7	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.0	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-006
Client Sample ID: AP MW-5

Report Date: 09/21/17
Collection Date: 08/24/17 12:09
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.2	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 precision (±)	0.31	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 226 MDC	0.13	pCi/L				E903.0	09/18/17 12:53 / eli-ca
Radium 228	2.2	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	09/12/17 13:37 / eli-ca
Radium 226 + Radium 228	3.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-007
Client Sample ID: AP MW-4

Report Date: 09/21/17
Collection Date: 08/24/17 13:00
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.85	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 precision (±)	0.19	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 228	1.7	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 precision (±)	0.86	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 226 + Radium 228	2.6	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-008
Client Sample ID: EQBK/SCM/082417

Report Date: 09/21/17
Collection Date: 08/24/17 13:30
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.16	pCi/L	U			E903.0	09/19/17 13:06 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 MDC	0.31	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 228	1.0	pCi/L	U			RA-05	09/14/17 09:09 / eli-ca
Radium 228 precision (±)	1.5	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 MDC	2.4	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 226 + Radium 228	1.2	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	2.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-009
Client Sample ID: EQBK-BJG-082417

Report Date: 09/21/17
Collection Date: 08/24/17 13:35
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.02	pCi/L	U			E903.0	09/19/17 13:06 / eli-ca
Radium 226 precision (±)	0.15	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 MDC	0.25	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 228	0.97	pCi/L	U			RA-05	09/14/17 09:09 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 226 + Radium 228	1	pCi/L	U			A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-010
Client Sample ID: DUP-2

Report Date: 09/21/17
Collection Date: 08/24/17
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	5.4	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 precision (±)	1.1	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 228	27	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 precision (±)	5.0	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 226 + Radium 228	32.6	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	5.2	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17082605-011
Client Sample ID: DUP-3

Report Date: 09/21/17
Collection Date: 08/24/17
DateReceived: 08/25/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.99	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 precision (±)	0.22	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	09/19/17 13:06 / eli-ca
Radium 228	4.5	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 precision (±)	1.2	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	09/14/17 09:09 / eli-ca
Radium 226 + Radium 228	5.5	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	09/20/17 17:14 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 09/20/17
Work Order: B17082605

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8624
Lab ID: LCS-RA226-8624	Laboratory Control Sample				Run: G542M_170904C				09/19/17 13:06
Radium 226	9.7	pCi/L		95	80	120			
Lab ID: MB-RA226-8624	Method Blank				Run: G542M_170904C				09/19/17 13:06
Radium 226	0.2	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17082605-007AMS	Sample Matrix Spike				Run: G542M_170904C				09/19/17 13:06
Radium 226	17	pCi/L		82	70	130			
Lab ID: B17082605-007AMSD	Sample Matrix Spike Duplicate				Run: G542M_170904C				09/19/17 13:06
Radium 226	18	pCi/L		85	70	130	2.3	20	
Method: E903.0									Batch: RA226-8623
Lab ID: LCS-RA226-8623	Laboratory Control Sample				Run: G542M-2_170904B				09/18/17 11:23
Radium 226	11	pCi/L		105	80	120			
Lab ID: MB-RA226-8623	Method Blank				Run: G542M-2_170904B				09/18/17 11:23
Radium 226	0.07	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C17080731-002CMS	Sample Matrix Spike				Run: G542M-2_170904B				09/18/17 11:23
Radium 226	29	pCi/L		122	70	130			
Lab ID: C17080731-002CMSD	Sample Matrix Spike Duplicate				Run: G542M-2_170904B				09/18/17 11:23
Radium 226	26	pCi/L		105	70	130	12	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 09/20/17
Work Order: B17082605

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-5584
Lab ID: LCS-228-RA226-8623	Laboratory Control Sample				Run: TENNELEC-3_170904A				09/12/17 12:04
Radium 228	11	pCi/L		100	80	120			
Lab ID: MB-RA226-8623	Method Blank				Run: TENNELEC-3_170904A				09/12/17 12:04
Radium 228	1.0	pCi/L							U
Radium 228 precision (±)	1	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: C17080731-003CMS	Sample Matrix Spike				Run: TENNELEC-3_170904A				09/12/17 12:04
Radium 228	24	pCi/L		105	70	130			
Lab ID: C17080731-003CMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170904A				09/12/17 12:04
Radium 228	22	pCi/L		95	70	130	8.2	20	
Method: RA-05									Batch: RA228-5585
Lab ID: LCS-228-RA226-8624	Laboratory Control Sample				Run: TENNELEC-3_170904C				09/14/17 09:09
Radium 228	9.9	pCi/L		96	80	120			
Lab ID: MB-RA226-8624	Method Blank				Run: TENNELEC-3_170904C				09/14/17 09:09
Radium 228	0.4	pCi/L							U
Radium 228 precision (±)	1.0	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: B17082605-008AMS	Sample Matrix Spike				Run: TENNELEC-3_170904C				09/14/17 09:09
Radium 228	20	pCi/L		94	70	130			
Lab ID: B17082605-008AMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170904C				09/14/17 09:09
Radium 228	19	pCi/L		88	70	130	5.8	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17082605

Login completed by: Gina McCartney
Date Received: 8/25/2017
Reviewed by: BL2000\tedwards
Received by: se
Reviewed Date: 8/31/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The temperature of the sample(s) for shipping container 1 was 2.0°C, shipping container 2 was 1.1°C, shipping container 3 was 1.7°C and shipping container 4 was 4.4°C.

ENERGY
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other ______

Comments

Rad chem only on this workorder
gm 8-25-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	B. Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

#	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SSP MW-2	8/24/17	0930	4	W	X	X			B17082605-001
2	AP MW-6	↓	0942	↓	↓	↓	↓			-002
3	SSP MW-3	↓	1035	↓	↓	↓	↓			-003
4	AP MW-1D	↓	1100	↓	↓	↓	↓			-004
5	SSP MW-4	↓	1150	↓	↓	↓	↓			-005
6	AP MW-5	↓	1209	↓	↓	↓	↓			-006
7	AP MW-4	↓	1300	↓	↓	↓	↓			-007
8	EQBK/SCM/082417	↓	1330	↓	↓	↓	↓			-008
9	EQBK-BJG-082417	↓	1335	↓	↓	↓	↓			-009
10	DUP-2	↓	—	↓	↓	↓	↓			-010

Custody Record MUST be signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Brian Gieselman	08/24/17 @ 1600	[signature]			
Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time: 08/25/17 9:30	Signature: [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check ______	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ENERGY
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page 2 of 2

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy, #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other ____

Comments

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	Brian Gieselman
Sampler Phone	512-241-2321
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
1	DUP-3	8/24/17	—	4	W	X	X			B17082605-011
2										
3										
4										
5										
6										
7										
8										
9										
10										

Custody Record MUST be signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Brian Gieselman	08/24/17@1600	[signature]			
Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	8/25/17 9:20	Susan Edgar [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check ____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

September 14, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17090189 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 8 samples for Texas Municipal Power Agency on 9/5/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17090189-004	MNW-18	08/31/17 1 :45	09/05/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Solids, Total Dissolved
B17090189-003	EQBK/SCM/083117	08/31/17 12:30	09/05/17	Ground Water	Same As Above
B17090189-006	SFL MW-7	08/31/17 18:25	09/05/17	Ground Water	Same As Above
B17090189-007	MNW-15	08/31/17 19:30	09/05/17	Ground Water	Same As Above
B17090189-008	DUP-1	08/31/17 0:00	09/05/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090189-003
Client Sample ID: EQBK/SCM/083117

Report Date: 09/14/17
Collection Date: 08/31/17 12:30
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	09/08/17 20:34 / slf
Magnesium	ND	mg/L		1		E200.7	09/08/17 20:34 / slf
Potassium	ND	mg/L		1		E200.7	09/08/17 20:34 / slf
Sodium	ND	mg/L		1		E200.7	09/08/17 20:34 / slf
PHYSICAL PROPERTIES							
pH	6.1	s.u.	H	0.1		A4500-H B	09/05/17 15:29 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/06/17 14:57 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	09/08/17 07:43 / cjm
Sulfate	ND	mg/L		1		E300.0	09/08/17 07:43 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/08/17 12:35 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.7	09/08/17 20:34 / slf
Arsenic	ND	mg/L		0.01		E200.8	09/09/17 05:07 / rlh
Barium	ND	mg/L		0.01		E200.7	09/08/17 20:34 / slf
Beryllium	ND	mg/L		0.001		E200.7	09/08/17 20:34 / slf
Boron	ND	mg/L		0.05		E200.7	09/08/17 20:34 / slf
Cadmium	ND	mg/L		0.01		E200.7	09/08/17 20:34 / slf
Chromium	ND	mg/L		0.01		E200.7	09/08/17 20:34 / slf
Cobalt	ND	mg/L		0.02		E200.7	09/08/17 20:34 / slf
Lead	ND	mg/L		0.01		E200.8	09/09/17 05:07 / rlh
Lithium	ND	mg/L		0.01		E200.7	09/08/17 20:34 / slf
Mercury	ND	mg/L		0.001		E245.1	09/07/17 13:46 / jag
Molybdenum	ND	mg/L		0.05		E200.7	09/08/17 20:34 / slf
Selenium	ND	mg/L		0.01		E200.8	09/09/17 05:07 / rlh
Thallium	ND	mg/L		0.01		E200.8	09/09/17 05:07 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090189-004
Client Sample ID: MNW-18

Report Date: 09/14/17
Collection Date: 08/31/17 13:45
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	444	mg/L		1		E200.7	09/08/17 06:49 / slf
Magnesium	71	mg/L		1		E200.7	09/08/17 06:49 / slf
Potassium	37	mg/L		1		E200.7	09/08/17 06:49 / slf
Sodium	735	mg/L		1		E200.7	09/08/17 06:49 / slf
PHYSICAL PROPERTIES							
pH	6.9	s.u.	H	0.1		A4500-H B	09/05/17 15:31 / pjw
Solids, Total Dissolved TDS @ 180 C	4020	mg/L	D	40		A2540 C	09/06/17 14:57 / rik
INORGANICS							
Chloride	521	mg/L	D	6		E300.0	09/08/17 08:02 / cjm
Sulfate	2120	mg/L	D	20		E300.0	09/08/17 08:02 / cjm
Fluoride	0.2	mg/L		0.1		A4500-F C	09/08/17 12:38 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/07/17 15:50 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/07/17 15:50 / rlh
Barium	0.05	mg/L		0.01		E200.8	09/07/17 15:50 / rlh
Beryllium	ND	mg/L		0.001		E200.7	09/08/17 06:49 / slf
Boron	0.44	mg/L		0.05		E200.7	09/08/17 06:49 / slf
Cadmium	ND	mg/L		0.01		E200.8	09/07/17 15:50 / rlh
Chromium	ND	mg/L		0.01		E200.8	09/07/17 15:50 / rlh
Cobalt	ND	mg/L		0.02		E200.8	09/07/17 15:50 / rlh
Lead	ND	mg/L		0.01		E200.8	09/07/17 15:50 / rlh
Lithium	0.40	mg/L	D	0.04		E200.7	09/08/17 06:49 / slf
Mercury	ND	mg/L		0.001		E245.1	09/06/17 14:23 / jag
Molybdenum	ND	mg/L		0.05		E200.8	09/07/17 15:50 / rlh
Selenium	ND	mg/L		0.01		E200.8	09/07/17 15:50 / rlh
Thallium	ND	mg/L		0.01		E200.8	09/07/17 15:50 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090189-006
Client Sample ID: SFL MW-7

Report Date: 09/14/17
Collection Date: 08/31/17 18:25
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	628	mg/L		1		E200.7	09/08/17 06:56 / slf
Magnesium	98	mg/L		1		E200.7	09/08/17 06:56 / slf
Potassium	46	mg/L		1		E200.7	09/08/17 06:56 / slf
Sodium	1200	mg/L		1		E200.7	09/08/17 06:56 / slf
PHYSICAL PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	09/05/17 15:36 / pjw
Solids, Total Dissolved TDS @ 180 C	6650	mg/L	D	90		A2540 C	09/06/17 14:57 / rik
INORGANICS							
Chloride	2770	mg/L	D	6		E300.0	09/08/17 08:41 / cjm
Sulfate	768	mg/L	D	20		E300.0	09/08/17 08:41 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/08/17 12:43 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/07/17 16:07 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/07/17 16:07 / rlh
Barium	0.03	mg/L		0.01		E200.7	09/08/17 06:56 / slf
Beryllium	ND	mg/L		0.001		E200.8	09/08/17 20:21 / rlh
Boron	0.70	mg/L		0.05		E200.7	09/08/17 06:56 / slf
Cadmium	ND	mg/L		0.01		E200.7	09/08/17 06:56 / slf
Chromium	ND	mg/L		0.01		E200.8	09/07/17 16:07 / rlh
Cobalt	ND	mg/L		0.02		E200.8	09/07/17 16:07 / rlh
Lead	ND	mg/L		0.01		E200.8	09/07/17 16:07 / rlh
Lithium	0.40	mg/L	D	0.04		E200.7	09/08/17 06:56 / slf
Mercury	ND	mg/L		0.001		E245.1	09/06/17 14:31 / jag
Molybdenum	ND	mg/L		0.05		E200.8	09/07/17 16:07 / rlh
Selenium	ND	mg/L		0.01		E200.8	09/07/17 16:07 / rlh
Thallium	ND	mg/L		0.01		E200.8	09/07/17 16:07 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090189-007
Client Sample ID: MNW-15

Report Date: 09/14/17
Collection Date: 08/31/17 19:30
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	264	mg/L		1		E200.7	09/08/17 20:51 / slf
Magnesium	52	mg/L		1		E200.7	09/08/17 20:51 / slf
Potassium	26	mg/L		1		E200.7	09/08/17 20:51 / slf
Sodium	434	mg/L	D	2		E200.7	09/08/17 20:51 / slf
PHYSICAL PROPERTIES							
pH	3.6	s.u.	H	0.1		A4500-H B	09/05/17 15:39 / pjw
Solids, Total Dissolved TDS @ 180 C	2700	mg/L	D	40		A2540 C	09/06/17 14:57 / rik
INORGANICS							
Chloride	721	mg/L	D	3		E300.0	09/08/17 09:39 / cjm
Sulfate	1260	mg/L	D	9		E300.0	09/08/17 09:39 / cjm
Fluoride	0.5	mg/L		0.1		A4500-F C	09/08/17 12:51 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/09/17 05:27 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/09/17 05:27 / rlh
Barium	0.02	mg/L		0.01		E200.7	09/08/17 20:51 / slf
Beryllium	0.073	mg/L		0.001		E200.7	09/08/17 20:51 / slf
Boron	9.43	mg/L		0.05		E200.7	09/08/17 20:51 / slf
Cadmium	0.09	mg/L		0.01		E200.7	09/08/17 20:51 / slf
Chromium	ND	mg/L		0.01		E200.7	09/08/17 20:51 / slf
Cobalt	0.29	mg/L	D	0.03		E200.7	09/08/17 20:51 / slf
Lead	0.01	mg/L		0.01		E200.8	09/09/17 05:27 / rlh
Lithium	0.05	mg/L	D	0.02		E200.7	09/08/17 20:51 / slf
Mercury	ND	mg/L		0.001		E245.1	09/07/17 13:48 / jag
Molybdenum	ND	mg/L		0.05		E200.7	09/08/17 20:51 / slf
Selenium	ND	mg/L		0.01		E200.8	09/09/17 05:27 / rlh
Thallium	ND	mg/L		0.01		E200.8	09/09/17 05:27 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090189-008
Client Sample ID: DUP-1

Report Date: 09/14/17
Collection Date: 08/31/17
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	644	mg/L		1		E200.7	09/08/17 07:00 / slf
Magnesium	101	mg/L		1		E200.7	09/08/17 07:00 / slf
Potassium	46	mg/L		1		E200.7	09/08/17 07:00 / slf
Sodium	1200	mg/L		1		E200.7	09/08/17 07:00 / slf
PHYSICAL PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	09/05/17 15:42 / pjw
Solids, Total Dissolved TDS @ 180 C	6490	mg/L	D	90		A2540 C	09/06/17 14:57 / rik
INORGANICS							
Chloride	2700	mg/L	D	6		E300.0	09/08/17 09:59 / cjm
Sulfate	785	mg/L	D	20		E300.0	09/08/17 09:59 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/08/17 12:54 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.05		E200.8	09/07/17 16:10 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/07/17 16:10 / rlh
Barium	0.03	mg/L		0.01		E200.7	09/08/17 07:00 / slf
Beryllium	ND	mg/L		0.001		E200.7	09/08/17 07:00 / slf
Boron	0.71	mg/L		0.05		E200.7	09/08/17 07:00 / slf
Cadmium	ND	mg/L		0.01		E200.7	09/08/17 07:00 / slf
Chromium	ND	mg/L		0.01		E200.8	09/07/17 16:10 / rlh
Cobalt	ND	mg/L		0.02		E200.8	09/07/17 16:10 / rlh
Lead	ND	mg/L		0.01		E200.8	09/07/17 16:10 / rlh
Lithium	0.39	mg/L	D	0.04		E200.7	09/08/17 07:00 / slf
Mercury	ND	mg/L		0.001		E245.1	09/06/17 14:33 / jag
Molybdenum	ND	mg/L		0.05		E200.8	09/07/17 16:10 / rlh
Selenium	ND	mg/L		0.01		E200.8	09/07/17 16:10 / rlh
Thallium	ND	mg/L		0.01		E200.8	09/07/17 16:10 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/13/17
Project: CCRR
Work Order: B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 113392
Lab ID: MB-113392		Method Blank				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-113392		Laboratory Control Sample				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		1000	mg/L	10	99	90	110			
Lab ID: B17090189-001A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		3580	mg/L	39				1.2	5	
Lab ID: B17090189-002A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		4760	mg/L	93				1.7	5	
Lab ID: B17090189-003A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10					5	
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.										
Lab ID: B17090189-004A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		4020	mg/L	40				0.1	5	
Lab ID: B17090189-005A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		8720	mg/L	92				1.5	5	
Lab ID: B17090189-006A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		6490	mg/L	93				2.4	5	
Lab ID: B17090189-007A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		2710	mg/L	39				0.5	5	
Lab ID: B17090189-008A DUP		Sample Duplicate				Run: BAL #SD-15_170906C				09/06/17 14:57
Solids, Total Dissolved TDS @ 180 C		6460	mg/L	91				0.5	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/13/17
Project: CCRR
Work Order: B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170908A	
Lab ID: **ICV**		Initial Calibration Verification Standard							09/08/17 12:11	
Fluoride		1.01	mg/L	0.10	101	90	110			
Method: **A4500-F C**									Batch: R286354	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170908A			09/08/17 12:08	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170908A			09/08/17 12:14	
Fluoride		1.02	mg/L	0.10	102	90	110			
Lab ID: **B17090189-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170908A			09/08/17 12:22	
Fluoride		1.16	mg/L	0.10	101	80	120			
Lab ID: **B17090189-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170908A			09/08/17 12:24	
Fluoride		1.15	mg/L	0.10	100	80	120	0.9	10	
Lab ID: **B17090264-002AMS**		Sample Matrix Spike				Run: MAN-TECH_170908A			09/08/17 13:15	
Fluoride		1.39	mg/L	0.10	101	80	120			
Lab ID: **B17090264-002AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170908A			09/08/17 13:17	
Fluoride		1.38	mg/L	0.10	100	80	120	0.7	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/13/17
Project: CCRR
Work Order: B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC _101-B_170905A	
Lab ID: **pH 8**	Initial Calibration Verification Standard								09/05/17 08:37	
pH		7.97	s.u.	0.10	100	98	102			
Method: **A4500-H B**									Batch: R286053	
Lab ID: **B17090189-001ADUP**	Sample Duplicate					Run: PHSC _101-B_170905A			09/05/17 15:23	
pH		6.81	s.u.	0.10				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/13/17
Project: CCRR
Work Order: B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E300.0**								Analytical Run: IC METROHM 1_170907A		
Lab ID: **ICV**	2	Initial Calibration Verification Standard							09/07/17 15:48	
Chloride		2.21	mg/L	1.0	98	90	110			
Sulfate		9.01	mg/L	1.0	100	90	110			
Method: **E300.0**									Batch: R286334	
Lab ID: **ICB**	2	Method Blank				Run: IC METROHM 1_170907A			09/07/17 16:07	
Chloride		ND	mg/L	0.006						
Sulfate		ND	mg/L	0.02						
Lab ID: **LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 1_170907A			09/07/17 16:27	
Chloride		10.5	mg/L	1.0	105	90	110			
Sulfate		30.9	mg/L	1.0	103	90	110			
Lab ID: **B17090021-002AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170907A			09/07/17 17:25	
Chloride		234	mg/L	1.0	98	90	110			
Sulfate		343	mg/L	1.8	104	90	110			
Lab ID: **B17090021-002AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170907A			09/07/17 17:44	
Chloride		234	mg/L	1.0	98	90	110	0.1	20	
Sulfate		344	mg/L	1.8	104	90	110	0.2	20	
Lab ID: **B17090189-002AMS**	2	Sample Matrix Spike				Run: IC METROHM 1_170907A			09/08/17 07:04	
Chloride		3140	mg/L	6.1	96	90	110			E
Sulfate		4100	mg/L	18	106	90	110			
Lab ID: **B17090189-002AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170907A			09/08/17 07:23	
Chloride		3130	mg/L	6.1	95	90	110	0.3	20	E
Sulfate		4090	mg/L	18	106	90	110	0.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

E - Estimated value. Result exceeds the instrument upper quantitation limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170907A	
Lab ID: ICV	9	Continuing Calibration Verification Standard							09/07/17 14:45	
Barium		2.52	mg/L	0.10	101	95	105			
Beryllium		1.24	mg/L	0.010	99	95	105			
Boron		2.48	mg/L	0.10	99	95	105			
Cadmium		2.42	mg/L	0.010	97	95	105			
Calcium		25.8	mg/L	1.0	103	95	105			
Lithium		1.29	mg/L	0.10	104	95	105			
Magnesium		25.6	mg/L	1.0	102	95	105			
Potassium		25.7	mg/L	1.0	103	95	105			
Sodium		25.8	mg/L	1.0	103	95	105			
Method: E200.7									Batch: 113363	
Lab ID: MB-113363	10	Method Blank				Run: ICP203-B_170907A			09/08/17 05:49	
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Magnesium, meq		ND	meq/L	0.001						
Lab ID: LCS-113363	9	Laboratory Control Sample				Run: ICP203-B_170907A			09/08/17 05:53	
Barium		0.475	mg/L	0.050	95	85	115			
Beryllium		0.246	mg/L	0.0010	99	85	115			
Boron		0.455	mg/L	0.050	91	85	115			
Cadmium		0.244	mg/L	0.0010	98	85	115			
Calcium		24.9	mg/L	1.0	100	85	115			
Lithium		0.479	mg/L	0.10	96	85	115			
Magnesium		24.9	mg/L	1.0	100	85	115			
Potassium		24.5	mg/L	1.0	98	85	115			
Sodium		24.1	mg/L	1.0	96	85	115			
Lab ID: B17090189-001BMS3	9	Sample Matrix Spike				Run: ICP203-B_170907A			09/08/17 06:38	
Barium		0.578	mg/L	0.050	103	70	130			
Beryllium		0.268	mg/L	0.0014	106	70	130			
Boron		1.34	mg/L	0.050	121	70	130			
Cadmium		0.248	mg/L	0.0099	99	70	130			
Calcium		446	mg/L	1.0		70	130			A
Lithium		1.09	mg/L	0.10	127	70	130			
Magnesium		89.6	mg/L	1.0	125	70	130			
Potassium		75.8	mg/L	1.0	131	70	130			S
Sodium		782	mg/L	4.2		70	130			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Batch: 113363	
Lab ID: **B17090189-001BMSD**	9	Sample Matrix Spike Duplicate				Run: ICP203-B_170907A			09/08/17 06:42	
Barium		0.566	mg/L	0.050	101	70	130	2.1	20	
Beryllium		0.258	mg/L	0.0014	102	70	130	3.8	20	
Boron		1.28	mg/L	0.050	109	70	130	4.7	20	
Cadmium		0.252	mg/L	0.0099	101	70	130	1.7	20	
Calcium		420	mg/L	1.0		70	130	6.2	20	A
Lithium		1.03	mg/L	0.10	115	70	130	5.6	20	
Magnesium		84.6	mg/L	1.0	105	70	130	5.8	20	
Potassium		72.1	mg/L	1.0	116	70	130	5.0	20	
Sodium		739	mg/L	4.2		70	130	5.6	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_170908A	
Lab ID: **ICV**	13	Continuing Calibration Verification Standard							09/08/17 11:47	
Antimony		2.50	mg/L	0.050	100	95	105			
Barium		2.53	mg/L	0.10	101	95	105			
Beryllium		1.24	mg/L	0.010	99	95	105			
Boron		2.50	mg/L	0.10	100	95	105			
Cadmium		2.45	mg/L	0.010	98	95	105			
Calcium		24.9	mg/L	1.0	100	95	105			
Chromium		2.53	mg/L	0.050	101	95	105			
Cobalt		2.46	mg/L	0.020	98	95	105			
Lithium		1.23	mg/L	0.10	99	95	105			
Magnesium		24.6	mg/L	1.0	99	95	105			
Molybdenum		2.52	mg/L	0.10	101	95	105			
Potassium		24.4	mg/L	1.0	98	95	105			
Sodium		24.4	mg/L	1.0	98	95	105			
Method: **E200.7**									Batch: 113400	
Lab ID: **MB-113400**	14	Method Blank				Run: ICP203-B_170908A			09/08/17 20:20	
Antimony		ND	mg/L	0.02						
Barium		ND	mg/L	0.0005						
Beryllium		ND	mg/L	0.0001						
Boron		ND	mg/L	0.003						
Cadmium		ND	mg/L	0.0010						
Calcium		ND	mg/L	0.08						
Chromium		ND	mg/L	0.002						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Molybdenum		ND	mg/L	0.007						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Magnesium, meq		ND	meq/L	0.001						
Lab ID: **LCS-113400**	13	Laboratory Control Sample				Run: ICP203-B_170908A			09/08/17 20:30	
Antimony		0.515	mg/L	0.021	103	85	115			
Barium		0.511	mg/L	0.050	102	85	115			
Beryllium		0.259	mg/L	0.0010	104	85	115			
Boron		0.469	mg/L	0.050	94	85	115			
Cadmium		0.259	mg/L	0.0010	104	85	115			
Calcium		26.5	mg/L	1.0	106	85	115			
Chromium		0.512	mg/L	0.0050	102	85	115			
Cobalt		0.514	mg/L	0.0052	103	85	115			
Lithium		0.507	mg/L	0.10	101	85	115			
Magnesium		26.9	mg/L	1.0	108	85	115			
Molybdenum		0.517	mg/L	0.0071	103	85	115			
Potassium		25.6	mg/L	1.0	102	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 113400
Lab ID: LCS-113400	13	Laboratory Control Sample				Run: ICP203-B_170908A				09/08/17 20:30
Sodium		25.7	mg/L	1.0	103	85	115			
Lab ID: B17090189-003BMS3	13	Sample Matrix Spike				Run: ICP203-B_170908A				09/08/17 20:44
Antimony		0.493	mg/L	0.021	99	70	130			
Barium		0.494	mg/L	0.050	99	70	130			
Beryllium		0.249	mg/L	0.0010	99	70	130			
Boron		0.462	mg/L	0.050	92	70	130			
Cadmium		0.246	mg/L	0.0010	98	70	130			
Calcium		25.4	mg/L	1.0	102	70	130			
Chromium		0.493	mg/L	0.0050	99	70	130			
Cobalt		0.491	mg/L	0.0052	98	70	130			
Lithium		0.491	mg/L	0.10	98	70	130			
Magnesium		26.1	mg/L	1.0	104	70	130			
Molybdenum		0.516	mg/L	0.0071	103	70	130			
Potassium		24.8	mg/L	1.0	99	70	130			
Sodium		25.1	mg/L	1.0	98	70	130			
Lab ID: B17090189-003BMSD	13	Sample Matrix Spike Duplicate				Run: ICP203-B_170908A				09/08/17 20:48
Antimony		0.487	mg/L	0.021	97	70	130	1.3	20	
Barium		0.479	mg/L	0.050	96	70	130	3.0	20	
Beryllium		0.239	mg/L	0.0010	96	70	130	3.9	20	
Boron		0.447	mg/L	0.050	89	70	130	3.3	20	
Cadmium		0.234	mg/L	0.0010	94	70	130	4.7	20	
Calcium		24.5	mg/L	1.0	98	70	130	3.4	20	
Chromium		0.471	mg/L	0.0050	94	70	130	4.5	20	
Cobalt		0.471	mg/L	0.0052	94	70	130	4.2	20	
Lithium		0.482	mg/L	0.10	96	70	130	1.8	20	
Magnesium		25.2	mg/L	1.0	101	70	130	3.5	20	
Molybdenum		0.481	mg/L	0.0071	96	70	130	7.1	20	
Potassium		24.4	mg/L	1.0	98	70	130	1.5	20	
Sodium		24.7	mg/L	1.0	97	70	130	1.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170907A	
Lab ID: QCS	10	Initial Calibration Verification Standard								09/07/17 13:33
Antimony		0.0507	mg/L	0.050	101	90	110			
Arsenic		0.0504	mg/L	0.0050	101	90	110			
Barium		0.0509	mg/L	0.10	102	90	110			
Cadmium		0.0268	mg/L	0.0010	107	90	110			
Chromium		0.0531	mg/L	0.010	106	90	110			
Cobalt		0.0524	mg/L	0.010	105	90	110			
Lead		0.0510	mg/L	0.010	102	90	110			
Molybdenum		0.0484	mg/L	0.0050	97	90	110			
Selenium		0.0501	mg/L	0.0050	100	90	110			
Thallium		0.0546	mg/L	0.10	109	90	110			
Method: E200.8										Batch: 113363
Lab ID: MB-113363	11	Method Blank				Run: ICPMS206-B_170907A				09/07/17 15:09
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		0.0002	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		0.00004	mg/L	0.00003						
Selenium		0.0005	mg/L	0.0004						
Thallium		ND	mg/L	7E-06						
Lab ID: LCS-113363	11	Laboratory Control Sample				Run: ICPMS206-B_170907A				09/07/17 15:29
Antimony		0.507	mg/L	0.0050	101	85	115			
Arsenic		0.483	mg/L	0.0010	97	85	115			
Barium		0.498	mg/L	0.010	100	85	115			
Beryllium		0.214	mg/L	0.0010	86	85	115			
Cadmium		0.254	mg/L	0.0010	101	85	115			
Chromium		0.508	mg/L	0.0010	101	85	115			
Cobalt		0.507	mg/L	0.0010	101	85	115			
Lead		0.502	mg/L	0.0010	100	85	115			
Molybdenum		0.475	mg/L	0.0050	95	85	115			
Selenium		0.491	mg/L	0.0050	98	85	115			
Thallium		0.522	mg/L	0.0010	104	85	115			
Lab ID: B17090189-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170907A				09/07/17 15:33
Antimony		0.511	mg/L	0.0010	102	70	130			
Arsenic		0.498	mg/L	0.0010	99	70	130			
Barium		0.538	mg/L	0.050	96	70	130			
Beryllium		0.209	mg/L	0.0010	84	70	130			
Cadmium		0.252	mg/L	0.0010	101	70	130			
Chromium		0.513	mg/L	0.0050	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 113363
Lab ID: B17090189-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170907A				09/07/17 15:33
Cobalt		0.477	mg/L	0.0050	95	70	130			
Lead		0.486	mg/L	0.0010	97	70	130			
Molybdenum		0.484	mg/L	0.0010	97	70	130			
Selenium		0.481	mg/L	0.0010	96	70	130			
Thallium		0.489	mg/L	0.00050	98	70	130			
Lab ID: B17090189-001BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170907A				09/07/17 15:36
Antimony		0.500	mg/L	0.0010	100	70	130	2.3	20	
Arsenic		0.524	mg/L	0.0010	105	70	130	5.0	20	
Barium		0.532	mg/L	0.050	95	70	130	1.1	20	
Beryllium		0.202	mg/L	0.0010	81	70	130	3.6	20	
Cadmium		0.263	mg/L	0.0010	105	70	130	4.2	20	
Chromium		0.533	mg/L	0.0050	106	70	130	3.7	20	
Cobalt		0.470	mg/L	0.0050	94	70	130	1.6	20	
Lead		0.469	mg/L	0.0010	94	70	130	3.5	20	
Molybdenum		0.474	mg/L	0.0010	95	70	130	2.2	20	
Selenium		0.475	mg/L	0.0010	95	70	130	1.3	20	
Thallium		0.494	mg/L	0.00050	99	70	130	0.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170908A	
Lab ID: QCS	6	Initial Calibration Verification Standard							09/08/17 12:27	
Antimony		0.0516	mg/L	0.050	103	90	110			
Arsenic		0.0490	mg/L	0.0050	98	90	110			
Beryllium		0.0263	mg/L	0.0010	105	90	110			
Lead		0.0511	mg/L	0.010	102	90	110			
Selenium		0.0494	mg/L	0.0050	99	90	110			
Thallium		0.0484	mg/L	0.10	97	90	110			
Method: E200.8									Batch: 113363	
Lab ID: MB-113363	11	Method Blank				Run: ICPMS206-B_170908A			09/08/17 19:43	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		0.0002	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		ND	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		ND	mg/L	7E-06						
Method: E200.8									Batch: 113400	
Lab ID: MB-113400	5	Method Blank				Run: ICPMS206-B_170908A			09/09/17 05:00	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Lead		0.00004	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		8E-06	mg/L	7E-06						
Lab ID: LCS-113400	5	Laboratory Control Sample				Run: ICPMS206-B_170908A			09/09/17 05:10	
Antimony		0.546	mg/L	0.0050	109	85	115			
Arsenic		0.547	mg/L	0.0010	109	85	115			
Lead		0.532	mg/L	0.0010	106	85	115			
Selenium		0.515	mg/L	0.0050	103	85	115			
Thallium		0.536	mg/L	0.0010	107	85	115			
Lab ID: B17090189-003BMS3	5	Sample Matrix Spike				Run: ICPMS206-B_170908A			09/09/17 05:14	
Antimony		0.544	mg/L	0.0010	109	70	130			
Arsenic		0.532	mg/L	0.0010	106	70	130			
Lead		0.501	mg/L	0.0010	100	70	130			
Selenium		0.510	mg/L	0.0010	102	70	130			
Thallium		0.516	mg/L	0.00050	103	70	130			
Lab ID: B17090189-003BMSD	5	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170908A			09/09/17 05:17	
Antimony		0.538	mg/L	0.0010	108	70	130	1.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 113400
Lab ID: **B17090189-003BMSD**	5	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170908A				09/09/17 05:17
Arsenic		0.532	mg/L	0.0010	106	70	130	0.1	20	
Lead		0.512	mg/L	0.0010	102	70	130	2.0	20	
Selenium		0.496	mg/L	0.0010	99	70	130	2.6	20	
Thallium		0.518	mg/L	0.00050	104	70	130	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/14/17

Project: CCRR **Work Order:** B17090189

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170906C	
Lab ID: **ICV**	Initial Calibration Verification Standard								09/06/17 13:42	
Mercury		0.00190	mg/L	0.00010	95	90	110			
Method: **E245.1**									Batch: 113365	
Lab ID: **MB-113365**	Method Blank					Run: HGCV202-B_170906C			09/06/17 14:06	
Mercury		1E-06	mg/L	1E-06						
Lab ID: **LCS-113365**	Laboratory Control Sample					Run: HGCV202-B_170906C			09/06/17 14:08	
Mercury		0.00193	mg/L	0.00010	97	85	115			
Lab ID: **B17090102-001AMS**	Sample Matrix Spike					Run: HGCV202-B_170906C			09/06/17 14:14	
Mercury		0.00189	mg/L	0.00010	95	70	130			
Lab ID: **B17090102-001AMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170906C			09/06/17 14:16	
Mercury		0.00200	mg/L	0.00010	100	70	130	5.5	30	
Method: **E245.1**									Analytical Run: HGCV202-B_170907A	
Lab ID: **ICV**	Initial Calibration Verification Standard								09/07/17 13:37	
Mercury		0.00191	mg/L	0.00010	96	90	110			
Method: **E245.1**									Batch: 113413	
Lab ID: **MB-113413**	Method Blank					Run: HGCV202-B_170907A			09/07/17 13:42	
Mercury		9E-07	mg/L	1E-06						
Lab ID: **LCS-113413**	Laboratory Control Sample					Run: HGCV202-B_170907A			09/07/17 13:44	
Mercury		0.00197	mg/L	0.00010	98	85	115			
Lab ID: **B17090268-001CMS**	Sample Matrix Spike					Run: HGCV202-B_170907A			09/07/17 13:52	
Mercury		0.00196	mg/L	0.00010	98	70	130			
Lab ID: **B17090268-001CMSD**	Sample Matrix Spike Duplicate					Run: HGCV202-B_170907A			09/07/17 13:54	
Mercury		0.00197	mg/L	0.00010	99	70	130	0.4	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency B17090189

Login completed by:	Gina McCartney	Date Received:	9/5/2017
Reviewed by:	BL2000\cindy	Received by:	qej
Reviewed Date:	9/6/2017	Carrier name:	FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 16.7°C, shipping container 2 was 9.0°C and shipping container 3 was 14.2°C.

Samples EQBK/SCM/083117 and MNW-15 for Total Metals were preserved to pH <2 with 2 mL of nitric acid per 250 mL in the laboratory. In accordance with the Clean Water Act, these samples must be held for 24 hour prior to analysis.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Samples EQBK/SCM/083117 and MNW-15 do not contain HNO_3 preservative.

All analysis except RadChem on this work order gm 9-5-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	S. Macon
Sampler Phone	512-795-0360
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI-CAS ID Laboratory Use Only
1	AP MW-6	8/31/17	0955	4	W	X	X			B1709018 9-001
2	MNW-11		1110							-002
3	EQBK/SCM/083117		1230							-003
4	MNW-18		1345							-004
5	MNW-16		1500							-005
6	SFL MW-7		1825							-006
7	MNW-15		1930							-007
8	DUP-1		—							-008
9										
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Samuel Macon	9-1-17 @1100	Samuel C. Macon	Minnie Jaser	9/5/17 09:20	
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

October 04, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17090193 Quote ID: B3997

Project Name: CCRR

Energy Laboratories Inc Billings MT received the following 8 samples for Texas Municipal Power Agency on 9/5/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17090193-003	EQBK/SCM/083117	08/31/17 12:30	09/05/17	Ground Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
B17090193-004	MNW-18	08/31/17 13:45	09/05/17	Ground Water	Same As Above
B17090193-006	SFL MW-7	08/31/17 18:25	09/05/17	Ground Water	Same As Above
B17090193-007	MNW-15	08/31/17 19:30	09/05/17	Ground Water	Same As Above
B17090193-008	DUP-1	08/31/17 19:30	09/05/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: CCRR
Work Order: B17090193

Report Date: 10/04/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090193-003
Client Sample ID: EQBK/SCM/083117

Report Date: 10/04/17
Collection Date: 08/31/17 12:30
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.22	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 precision (±)	0.17	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 228	0.12	pCi/L	U			RA-05	09/23/17 15:22 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 228 MDC	2.4	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 226 + Radium 228	0.3	pCi/L	U			A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	2.4	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090193-004
Client Sample ID: MNW-18

Report Date: 10/04/17
Collection Date: 08/31/17 13:45
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.9	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 precision (±)	0.46	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 228	5.7	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 226 + Radium 228	7.6	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.5	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090193-006
Client Sample ID: SFL MW-7

Report Date: 10/04/17
Collection Date: 08/31/17 18:25
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.77	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 228	0.61	pCi/L	U			RA-05	09/23/17 15:22 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 226 + Radium 228	1.4	pCi/L	U			A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.2	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090193-007
Client Sample ID: MNW-15

Report Date: 10/04/17
Collection Date: 08/31/17 19:30
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.37	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 precision (±)	0.16	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 228	1.7	pCi/L				RA-05	09/23/17 13:46 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/23/17 13:46 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/23/17 13:46 / eli-ca
Radium 226 + Radium 228	2.1	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: CCRR
Lab ID: B17090193-008
Client Sample ID: DUP-1

Report Date: 10/04/17
Collection Date: 08/31/17 19:30
DateReceived: 09/05/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.74	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	09/28/17 16:49 / eli-ca
Radium 228	2.3	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 228 MDC	1.9	pCi/L				RA-05	09/23/17 15:22 / eli-ca
Radium 226 + Radium 228	3.1	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.9	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 10/03/17
Work Order: B17090193

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-8657
Lab ID: MB-RA226-8657	Method Blank				Run: G542M-2_170918C				09/28/17 16:49
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: B17090193-002AMS	Sample Matrix Spike				Run: G542M-2_170918C				09/28/17 16:49
Radium 226	23	pCi/L		89	70	130			
Lab ID: B17090193-002AMSD	Sample Matrix Spike Duplicate				Run: G542M-2_170918C				09/28/17 16:49
Radium 226	25	pCi/L		97	70	130	8.3	20	
Lab ID: LCS-RA226-8657	Laboratory Control Sample				Run: G542M-2_170918C				09/28/17 16:49
Radium 226	8.6	pCi/L		84	80	120			

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: CCRR

Report Date: 10/03/17
Work Order: B17090193

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**									Batch: RA228-5604
Lab ID: **LCS-228-RA226-8657**	Laboratory Control Sample				Run: TENNELEC-3_170918B				09/23/17 13:46
Radium 228	8.5	pCi/L		84	80	120			
Lab ID: **MB-RA226-8657**	Method Blank				Run: TENNELEC-3_170918B				09/23/17 13:46
Radium 228	0.2	pCi/L							U
Radium 228 precision (±)	1	pCi/L							
Radium 228 MDC	2	pCi/L							
Lab ID: **B17090193-007AMS**	Sample Matrix Spike				Run: TENNELEC-3_170918B				09/23/17 13:46
Radium 228	24	pCi/L		90	70	130			
Lab ID: **B17090193-007AMSD**	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170918B				09/23/17 13:46
Radium 228	26	pCi/L		97	70	130	7.2	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17090193

Login completed by: Gina McCartney
Date Received: 9/5/2017
Reviewed by: BL2000\cindy
Received by: qej
Reviewed Date: 9/6/2017
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 16.7°C, shipping container 2 was 9.0°C and shipping container 3 was 14.2°C.

Samples WQBK/SCM/083117 and MNW-15 for Radio-Chemistry was received at pH >2. Nitric acid (8 mL) was added to both containers in the laboratory to preserve to pH <2.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Samples EQBK/SCM/083117 and MNW-15 do not contain HNO_3 preservative.

RadChem analysis only on this work order gm 9-5-17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	S. Macon
Sampler Phone	512-795-0360
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	Laboratory Use Only
1	AP MW-6	8/31/17	0955	4	W	X	X			B1709193-001
2	MNW-11		1110							-002
3	EQBK/SCM/083117		1230							-003
4	MNW-18		1345							-004
5	MNW-16		1500							-005
6	SFL MW-7		1825							-006
7	MNW-15		1930							-007
8	DUP-1		—							-008
9										
10										

Custody Record MUST be signed							
Relinquished by (print)	Samuel Macon	Date/Time	9-1-17 @1400	Signature	Samuel C. Macon	Received by (print)	Quinlee Jaros
Relinquished by (print)		Date/Time		Signature		Received by Laboratory (print)	

Date/Time	Signature
9/5/17 09:20	
Date/Time	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount $	Receipt Num

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

December 15, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17090709 Quote ID: B3997 - CCRR

Project Name: TMPA CCRR

Energy Laboratories Inc Billings MT received the following 9 samples for Texas Municipal Power Agency on 9/11/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17090709-001	SFL MW-7	09/07/17 10:40	09/11/17	Ground Water	Metals by ICP/ICPMS, Tot. Rec. Mercury, Total Recoverable Fluoride Anions by Ion Chromatography pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Solids, Total Dissolved
B17090709-002	MNW-15	09/07/17 12:00	09/11/17	Ground Water	Same As Above
B17090709-003	EQBK/SCM/090717	09/07/17 13:00	09/11/17	Ground Water	Same As Above
B17090709-004	MNW-18	09/07/17 13:55	09/11/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA CCRR
Work Order: B17090709

Revised Date: 12/15/17
Report Date: 09/20/17

CASE NARRATIVE

Revised Report 12/15/2017

The reporting limits for the following analytes were lowered per request from Greg Seifert.

Analyte	Original Reporting Limit (mg/L)	Revised Reporting limit (mg/L)
Antimony	0.05	0.006
Cadmium	0.01	0.005
Thallium	0.01	0.002

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090709-001
Client Sample ID: SFL MW-7

Revised Date: 12/15/17
Report Date: 09/20/17
Collection Date: 09/07/17 10:40
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	613	mg/L		1		E200.7	09/14/17 05:06 / slf
Magnesium	98	mg/L		1		E200.7	09/14/17 05:06 / slf
Potassium	43	mg/L		1		E200.7	09/14/17 05:06 / slf
Sodium	1120	mg/L	D	4		E200.7	09/14/17 05:06 / slf
PHYSICAL PROPERTIES							
pH	6.7	s.u.	H	0.1		A4500-H B	09/11/17 15:06 / pjw
Solids, Total Dissolved TDS @ 180 C	6810	mg/L	D	90		A2540 C	09/12/17 10:49 / rik
INORGANICS							
Chloride	2820	mg/L	D	6		E300.0	09/17/17 01:13 / cjm
Sulfate	770	mg/L	D	20		E300.0	09/17/17 01:13 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/13/17 18:01 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	09/12/17 18:18 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/12/17 18:18 / rlh
Barium	0.04	mg/L		0.01		E200.8	09/12/17 18:18 / rlh
Beryllium	ND	mg/L		0.001		E200.8	09/12/17 18:18 / rlh
Boron	0.59	mg/L		0.05		E200.7	09/14/17 05:06 / slf
Cadmium	ND	mg/L		0.005		E200.8	09/12/17 18:18 / rlh
Chromium	ND	mg/L		0.01		E200.8	09/12/17 18:18 / rlh
Cobalt	ND	mg/L		0.02		E200.8	09/15/17 18:22 / rlh
Lead	ND	mg/L		0.01		E200.8	09/12/17 18:18 / rlh
Lithium	0.37	mg/L	D	0.04		E200.7	09/14/17 05:06 / slf
Mercury	ND	mg/L		0.001		E245.1	09/12/17 13:56 / jag
Molybdenum	ND	mg/L		0.05		E200.8	09/12/17 18:18 / rlh
Selenium	ND	mg/L		0.01		E200.8	09/12/17 18:18 / rlh
Thallium	ND	mg/L		0.002		E200.8	09/12/17 18:18 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090709-002
Client Sample ID: MNW-15

Revised Date: 12/15/17
Report Date: 09/20/17
Collection Date: 09/07/17 12:00
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	260	mg/L		1		E200.7	09/14/17 05:30 / slf
Magnesium	50	mg/L		1		E200.7	09/14/17 05:30 / slf
Potassium	26	mg/L		1		E200.7	09/14/17 05:30 / slf
Sodium	416	mg/L	D	2		E200.7	09/14/17 05:30 / slf
PHYSICAL PROPERTIES							
pH	3.7	s.u.	H	0.1		A4500-H B	09/11/17 15:08 / pjw
Solids, Total Dissolved TDS @ 180 C	2750	mg/L	D	40		A2540 C	09/12/17 10:49 / rik
INORGANICS							
Chloride	740	mg/L	D	3		E300.0	09/17/17 02:12 / cjm
Sulfate	1280	mg/L	D	9		E300.0	09/17/17 02:12 / cjm
Fluoride	0.4	mg/L		0.1		A4500-F C	09/13/17 18:07 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	09/12/17 18:39 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/12/17 18:39 / rlh
Barium	0.03	mg/L		0.01		E200.8	09/12/17 18:39 / rlh
Beryllium	0.067	mg/L		0.001		E200.8	09/12/17 18:39 / rlh
Boron	9.26	mg/L		0.05		E200.7	09/14/17 05:30 / slf
Cadmium	0.089	mg/L		0.005		E200.8	09/12/17 18:39 / rlh
Chromium	ND	mg/L		0.01		E200.8	09/12/17 18:39 / rlh
Cobalt	0.29	mg/L	D	0.03		E200.7	09/14/17 05:30 / slf
Lead	ND	mg/L		0.01		E200.8	09/12/17 18:39 / rlh
Lithium	0.05	mg/L	D	0.02		E200.7	09/14/17 05:30 / slf
Mercury	ND	mg/L		0.001		E245.1	09/12/17 13:58 / jag
Molybdenum	ND	mg/L		0.05		E200.8	09/12/17 18:39 / rlh
Selenium	ND	mg/L		0.01		E200.8	09/12/17 18:39 / rlh
Thallium	0.002	mg/L		0.002		E200.8	09/12/17 18:39 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090709-003
Client Sample ID: EQBK/SCM/090717

Revised Date: 12/15/17
Report Date: 09/20/17
Collection Date: 09/07/17 13:00
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	ND	mg/L		1		E200.7	09/14/17 05:34 / slf
Magnesium	ND	mg/L		1		E200.7	09/14/17 05:34 / slf
Potassium	ND	mg/L		1		E200.7	09/14/17 05:34 / slf
Sodium	ND	mg/L		1		E200.7	09/14/17 05:34 / slf
PHYSICAL PROPERTIES							
pH	6.0	s.u.	H	0.1		A4500-H B	09/11/17 15:11 / pjw
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/12/17 10:49 / rik
INORGANICS							
Chloride	ND	mg/L		1		E300.0	09/17/17 02:31 / cjm
Sulfate	ND	mg/L		1		E300.0	09/17/17 02:31 / cjm
Fluoride	ND	mg/L		0.1		A4500-F C	09/13/17 18:15 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	09/12/17 18:42 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/12/17 18:42 / rlh
Barium	ND	mg/L		0.01		E200.8	09/12/17 18:42 / rlh
Beryllium	ND	mg/L		0.001		E200.8	09/12/17 18:42 / rlh
Boron	ND	mg/L		0.05		E200.7	09/14/17 05:34 / slf
Cadmium	ND	mg/L		0.005		E200.8	09/12/17 18:42 / rlh
Chromium	ND	mg/L		0.01		E200.8	09/12/17 18:42 / rlh
Cobalt	ND	mg/L		0.02		E200.7	09/14/17 05:34 / slf
Lead	ND	mg/L		0.01		E200.8	09/12/17 18:42 / rlh
Lithium	ND	mg/L		0.01		E200.7	09/14/17 05:34 / slf
Mercury	ND	mg/L		0.001		E245.1	09/12/17 14:00 / jag
Molybdenum	ND	mg/L		0.05		E200.8	09/12/17 18:42 / rlh
Selenium	ND	mg/L		0.01		E200.8	09/12/17 18:42 / rlh
Thallium	ND	mg/L		0.002		E200.8	09/12/17 18:42 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090709-004
Client Sample ID: MNW-18

Revised Date: 12/15/17
Report Date: 09/20/17
Collection Date: 09/07/17 13:55
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Calcium	439	mg/L		1		E200.7	09/14/17 05:37 / slf
Magnesium	71	mg/L		1		E200.7	09/14/17 05:37 / slf
Potassium	34	mg/L		1		E200.7	09/14/17 05:37 / slf
Sodium	677	mg/L	D	4		E200.7	09/14/17 05:37 / slf
PHYSICAL PROPERTIES							
pH	6.9	s.u.	H	0.1		A4500-H B	09/11/17 15:14 / pjw
Solids, Total Dissolved TDS @ 180 C	4070	mg/L	D	40		A2540 C	09/12/17 10:49 / rik
INORGANICS							
Chloride	529	mg/L	D	6		E300.0	09/17/17 02:51 / cjm
Sulfate	2200	mg/L	D	20		E300.0	09/17/17 02:51 / cjm
Fluoride	0.1	mg/L		0.1		A4500-F C	09/13/17 18:18 / cjm
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.006		E200.8	09/12/17 18:45 / rlh
Arsenic	ND	mg/L		0.01		E200.8	09/12/17 18:45 / rlh
Barium	0.05	mg/L		0.01		E200.8	09/12/17 18:45 / rlh
Beryllium	ND	mg/L		0.001		E200.8	09/12/17 18:45 / rlh
Boron	0.30	mg/L		0.05		E200.7	09/14/17 05:37 / slf
Cadmium	ND	mg/L		0.005		E200.8	09/12/17 18:45 / rlh
Chromium	ND	mg/L		0.01		E200.8	09/12/17 18:45 / rlh
Cobalt	ND	mg/L		0.02		E200.8	09/15/17 18:42 / rlh
Lead	ND	mg/L		0.01		E200.8	09/12/17 18:45 / rlh
Lithium	0.36	mg/L	D	0.04		E200.7	09/14/17 05:37 / slf
Mercury	ND	mg/L		0.001		E245.1	09/12/17 14:02 / jag
Molybdenum	ND	mg/L		0.05		E200.8	09/12/17 18:45 / rlh
Selenium	ND	mg/L		0.01		E200.8	09/12/17 18:45 / rlh
Thallium	ND	mg/L		0.002		E200.8	09/12/17 18:45 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/20/17
Project: TMPA CCRR
Work Order: B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 113581
Lab ID: MB-113581		Method Blank				Run: BAL #SD-15_170912C				09/12/17 10:49
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	4						
Lab ID: LCS-113581		Laboratory Control Sample				Run: BAL #SD-15_170912C				09/12/17 10:49
Solids, Total Dissolved TDS @ 180 C		1000	mg/L	10	99	90	110			
Lab ID: B17090709-001A DUP		Sample Duplicate				Run: BAL #SD-15_170912C				09/12/17 10:49
Solids, Total Dissolved TDS @ 180 C		6640	mg/L	99				2.5	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/20/17
Project: TMPA CCRR
Work Order: B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-F C**									Analytical Run: MAN-TECH_170913A	
Lab ID: **ICV**		Initial Calibration Verification Standard							09/13/17 16:03	
Fluoride		0.940	mg/L	0.10	94	90	110			
Method: **A4500-F C**									Batch: R286653	
Lab ID: **MBLK**		Method Blank				Run: MAN-TECH_170913A			09/13/17 16:01	
Fluoride		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: MAN-TECH_170913A			09/13/17 16:06	
Fluoride		0.950	mg/L	0.10	95	90	110			
Lab ID: **B17090657-001AMS**		Sample Matrix Spike				Run: MAN-TECH_170913A			09/13/17 17:44	
Fluoride		1.71	mg/L	0.10	103	80	120			
Lab ID: **B17090657-001AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170913A			09/13/17 17:47	
Fluoride		1.71	mg/L	0.10	103	80	120	0.0	10	
Lab ID: **B17090709-006AMS**		Sample Matrix Spike				Run: MAN-TECH_170913A			09/13/17 18:38	
Fluoride		1.06	mg/L	0.10	90	80	120			
Lab ID: **B17090709-006AMSD**		Sample Matrix Spike Duplicate				Run: MAN-TECH_170913A			09/13/17 18:41	
Fluoride		1.05	mg/L	0.10	89	80	120	0.9	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/20/17
Project: TMPA CCRR
Work Order: B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**										Analytical Run: PHSC _101-B_170911A
Lab ID: **pH 8**	Initial Calibration Verification Standard									09/11/17 08:41
pH		7.98	s.u.	0.10	100	98	102			
Method: **A4500-H B**										Batch: R286396
Lab ID: **B17090709-007ADUP**	Sample Duplicate					Run: PHSC _101-B_170911A				09/11/17 15:24
pH		12.1	s.u.	0.10				0.2	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Report Date: 09/20/17
Project: TMPA CCRR
Work Order: B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC METROHM 1_170915B	
Lab ID: ICV	2	Initial Calibration Verification Standard							09/15/17 13:51	
Chloride		2.22	mg/L	1.0	99	90	110			
Sulfate		9.01	mg/L	1.0	100	90	110			
Method: E300.0									Batch: R286837	
Lab ID: ICB	2	Method Blank				Run: IC METROHM 1_170915B			09/15/17 14:11	
Chloride		ND	mg/L	0.006						
Sulfate		ND	mg/L	0.02						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: IC METROHM 1_170915B			09/15/17 14:30	
Chloride		10.2	mg/L	1.0	102	90	110			
Sulfate		30.3	mg/L	1.0	101	90	110			
Lab ID: B17090709-001AMS	2	Sample Matrix Spike				Run: IC METROHM 1_170915B			09/17/17 01:33	
Chloride		3730	mg/L	6.1	91	90	110			E
Sulfate		3950	mg/L	18	106	90	110			
Lab ID: B17090709-001AMSD	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170915B			09/17/17 01:52	
Chloride		3720	mg/L	6.1	90	90	110	0.3	20	E
Sulfate		3960	mg/L	18	106	90	110	0.3	20	
Lab ID: B17091041-008AMS	2	Sample Matrix Spike				Run: IC METROHM 1_170915B			09/17/17 06:06	
Chloride		1560	mg/L	6.1	106	90	110			
Sulfate		7960	mg/L	18	97	90	110			
Lab ID: B17091041-008AMSD	2	Sample Matrix Spike Duplicate				Run: IC METROHM 1_170915B			09/17/17 06:26	
Chloride		1550	mg/L	6.1	104	90	110	0.8	20	
Sulfate		7910	mg/L	18	95	90	110	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

E - Estimated value. Result exceeds the instrument upper quantitation limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/20/17

Project: TMPA CCRR **Work Order:** B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_170913A	
Lab ID: ICV	7	Continuing Calibration Verification Standard							09/13/17 11:15	
Boron		2.47	mg/L	0.10	99	95	105			
Calcium		24.1	mg/L	1.0	97	95	105			
Cobalt		2.41	mg/L	0.020	96	95	105			
Lithium		1.20	mg/L	0.10	96	95	105			
Magnesium		24.3	mg/L	1.0	97	95	105			
Potassium		23.9	mg/L	1.0	96	95	105			
Sodium		24.0	mg/L	1.0	96	95	105			
Method: E200.7									Batch: 113553	
Lab ID: MB-113553	8	Method Blank				Run: ICP203-B_170913A			09/14/17 04:55	
Boron		ND	mg/L	0.003						
Calcium		ND	mg/L	0.08						
Cobalt		ND	mg/L	0.005						
Lithium		ND	mg/L	0.004						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.07						
Sodium		ND	mg/L	0.03						
Magnesium, meq		ND	meq/L	0.001						
Lab ID: LCS-113553	7	Laboratory Control Sample				Run: ICP203-B_170913A			09/14/17 04:58	
Boron		0.464	mg/L	0.050	93	85	115			
Calcium		25.2	mg/L	1.0	101	85	115			
Cobalt		0.511	mg/L	0.0052	102	85	115			
Lithium		0.484	mg/L	0.10	97	85	115			
Magnesium		25.5	mg/L	1.0	102	85	115			
Potassium		24.6	mg/L	1.0	98	85	115			
Sodium		24.8	mg/L	1.0	99	85	115			
Lab ID: B17090709-001BMS3	7	Sample Matrix Spike				Run: ICP203-B_170913A			09/14/17 05:16	
Boron		1.08	mg/L	0.050	99	70	130			
Calcium		626	mg/L	1.0		70	130			A
Cobalt		0.504	mg/L	0.052	101	70	130			
Lithium		0.823	mg/L	0.10	91	70	130			
Magnesium		120	mg/L	1.0	88	70	130			
Potassium		65.4	mg/L	1.0	91	70	130			
Sodium		1130	mg/L	4.2		70	130			A
Lab ID: B17090709-001BMSD	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170913A			09/14/17 05:27	
Boron		1.11	mg/L	0.050	104	70	130	2.4	20	
Calcium		631	mg/L	1.0		70	130	0.7	20	A
Cobalt		0.506	mg/L	0.052	101	70	130	0.4	20	
Lithium		0.855	mg/L	0.10	97	70	130	3.8	20	
Magnesium		120	mg/L	1.0	91	70	130	0.6	20	
Potassium		65.7	mg/L	1.0	92	70	130	0.4	20	
Sodium		1150	mg/L	4.2		70	130	2.4	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/20/17

Project: TMPA CCRR **Work Order:** B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Batch: 113553	
Lab ID: **B17090709-001BMSD**	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170913A			09/14/17 05:27	
Lab ID: **B17090786-002AMS3**	7	Sample Matrix Spike				Run: ICP203-B_170913A			09/14/17 06:20	
Boron		0.664	mg/L	0.050	98	70	130			
Calcium		89.3	mg/L	1.0	103	70	130			
Cobalt		0.472	mg/L	0.0052	94	70	130			
Lithium		0.552	mg/L	0.10	94	70	130			
Magnesium		66.4	mg/L	1.0	104	70	130			
Potassium		57.9	mg/L	1.0	99	70	130			
Sodium		128	mg/L	1.0		70	130			A
Lab ID: **B17090786-002AMSD**	7	Sample Matrix Spike Duplicate				Run: ICP203-B_170913A			09/14/17 06:24	
Boron		0.643	mg/L	0.050	94	70	130	3.2	20	
Calcium		86.2	mg/L	1.0	90	70	130	3.6	20	
Cobalt		0.468	mg/L	0.0052	94	70	130	1.0	20	
Lithium		0.532	mg/L	0.10	90	70	130	3.7	20	
Magnesium		64.4	mg/L	1.0	96	70	130	3.1	20	
Potassium		56.0	mg/L	1.0	91	70	130	3.4	20	
Sodium		123	mg/L	1.0		70	130	4.3	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/20/17

Project: TMPA CCRR **Work Order:** B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS206-B_170912A	
Lab ID: QCS	10	Initial Calibration Verification Standard							09/12/17 11:34	
Antimony		0.0501	mg/L	0.050	100	90	110			
Arsenic		0.0510	mg/L	0.0050	102	90	110			
Barium		0.0492	mg/L	0.10	98	90	110			
Beryllium		0.0264	mg/L	0.0010	106	90	110			
Cadmium		0.0260	mg/L	0.0010	104	90	110			
Chromium		0.0506	mg/L	0.010	101	90	110			
Lead		0.0500	mg/L	0.010	100	90	110			
Molybdenum		0.0457	mg/L	0.0050	91	90	110			
Selenium		0.0514	mg/L	0.0050	103	90	110			
Thallium		0.0551	mg/L	0.10	110	90	110			
Method: E200.8									Batch: 113553	
Lab ID: MB-113553	11	Method Blank				Run: ICPMS206-B_170912A			09/12/17 18:01	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.00005						
Beryllium		0.0002	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		0.00008	mg/L	0.00002						
Lead		0.00003	mg/L	0.00003						
Molybdenum		0.0002	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00009	mg/L	7E-06						
Lab ID: LCS-113553	10	Laboratory Control Sample				Run: ICPMS206-B_170912A			09/12/17 18:21	
Antimony		0.536	mg/L	0.0050	107	85	115			
Arsenic		0.521	mg/L	0.0010	104	85	115			
Barium		0.525	mg/L	0.010	105	85	115			
Beryllium		0.252	mg/L	0.0010	101	85	115			
Cadmium		0.259	mg/L	0.0010	104	85	115			
Chromium		0.500	mg/L	0.0010	100	85	115			
Lead		0.534	mg/L	0.0010	107	85	115			
Molybdenum		0.500	mg/L	0.0050	100	85	115			
Selenium		0.515	mg/L	0.0050	103	85	115			
Thallium		0.523	mg/L	0.0010	105	85	115			
Lab ID: B17090709-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170912A			09/12/17 18:25	
Antimony		0.499	mg/L	0.0010	100	70	130			
Arsenic		0.531	mg/L	0.0010	106	70	130			
Barium		0.522	mg/L	0.050	97	70	130			
Beryllium		0.241	mg/L	0.0010	96	70	130			
Cadmium		0.255	mg/L	0.0010	102	70	130			
Chromium		0.504	mg/L	0.0050	101	70	130			
Cobalt		0.499	mg/L	0.0050	100	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/20/17

Project: TMPA CCRR **Work Order:** B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 113553
Lab ID: B17090709-001BMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170912A				09/12/17 18:25
Lead		0.482	mg/L	0.0010	96	70	130			
Molybdenum		0.482	mg/L	0.0010	96	70	130			
Selenium		0.495	mg/L	0.0018	99	70	130			
Thallium		0.447	mg/L	0.00050	89	70	130			
Lab ID: B17090709-001BMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170912A				09/12/17 18:28
Antimony		0.496	mg/L	0.0010	99	70	130	0.5	20	
Arsenic		0.538	mg/L	0.0010	108	70	130	1.4	20	
Barium		0.514	mg/L	0.050	96	70	130	1.4	20	
Beryllium		0.249	mg/L	0.0010	100	70	130	3.5	20	
Cadmium		0.248	mg/L	0.0010	99	70	130	2.9	20	
Chromium		0.508	mg/L	0.0050	101	70	130	0.7	20	
Cobalt		0.488	mg/L	0.0050	97	70	130	2.2	20	
Lead		0.482	mg/L	0.0010	96	70	130	0.0	20	
Molybdenum		0.472	mg/L	0.0010	94	70	130	2.1	20	
Selenium		0.508	mg/L	0.0018	102	70	130	2.6	20	
Thallium		0.457	mg/L	0.00050	91	70	130	2.1	20	
Lab ID: B17090786-002AMS3	11	Sample Matrix Spike				Run: ICPMS206-B_170912A				09/12/17 19:54
Antimony		0.490	mg/L	0.0010	98	70	130			
Arsenic		0.542	mg/L	0.0010	107	70	130			
Barium		0.536	mg/L	0.050	95	70	130			
Beryllium		0.216	mg/L	0.0010	86	70	130			
Cadmium		0.250	mg/L	0.0010	100	70	130			
Chromium		0.497	mg/L	0.0050	99	70	130			
Cobalt		0.527	mg/L	0.0050	105	70	130			
Lead		0.484	mg/L	0.0010	97	70	130			
Molybdenum		0.478	mg/L	0.0010	95	70	130			
Selenium		0.467	mg/L	0.0010	93	70	130			
Thallium		0.530	mg/L	0.00050	106	70	130			
Lab ID: B17090786-002AMSD	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170912A				09/12/17 19:58
Antimony		0.507	mg/L	0.0010	101	70	130	3.4	20	
Arsenic		0.535	mg/L	0.0010	105	70	130	1.3	20	
Barium		0.553	mg/L	0.050	98	70	130	3.1	20	
Beryllium		0.229	mg/L	0.0010	92	70	130	5.8	20	
Cadmium		0.249	mg/L	0.0010	100	70	130	0.2	20	
Chromium		0.500	mg/L	0.0050	100	70	130	0.4	20	
Cobalt		0.541	mg/L	0.0050	108	70	130	2.6	20	
Lead		0.501	mg/L	0.0010	100	70	130	3.6	20	
Molybdenum		0.490	mg/L	0.0010	97	70	130	2.6	20	
Selenium		0.466	mg/L	0.0010	92	70	130	0.2	20	
Thallium		0.519	mg/L	0.00050	104	70	130	2.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/20/17

Project: TMPA CCRR **Work Order:** B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS206-B_170915A	
Lab ID: **QCS**		Initial Calibration Verification Standard							09/15/17 18:04	
Cobalt		0.0517	mg/L	0.010	103	90	110			
Method: **E200.8**									Batch: 113553	
Lab ID: **MB-113553**	11	Method Blank				Run: ICPMS206-B_170915A			09/15/17 18:18	
Antimony		ND	mg/L	0.00004						
Arsenic		ND	mg/L	0.0002						
Barium		0.0003	mg/L	0.00005						
Beryllium		ND	mg/L	0.00008						
Cadmium		ND	mg/L	0.00003						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.00002						
Lead		0.00003	mg/L	0.00003						
Molybdenum		ND	mg/L	0.00003						
Selenium		ND	mg/L	0.0004						
Thallium		0.00003	mg/L	7E-06						
Lab ID: **LCS-113553**	11	Laboratory Control Sample				Run: ICPMS206-B_170915A			09/15/17 18:25	
Antimony		0.553	mg/L	0.0050	111	85	115			
Arsenic		0.545	mg/L	0.0010	109	85	115			
Barium		0.542	mg/L	0.010	108	85	115			
Beryllium		0.257	mg/L	0.0010	103	85	115			
Cadmium		0.262	mg/L	0.0010	105	85	115			
Chromium		0.502	mg/L	0.0010	100	85	115			
Cobalt		0.550	mg/L	0.0010	110	85	115			
Lead		0.536	mg/L	0.0010	107	85	115			
Molybdenum		0.514	mg/L	0.0050	103	85	115			
Selenium		0.506	mg/L	0.0050	101	85	115			
Thallium		0.535	mg/L	0.0010	107	85	115			
Lab ID: **B17090709-001BMS3**	11	Sample Matrix Spike				Run: ICPMS206-B_170915A			09/15/17 18:29	
Antimony		0.530	mg/L	0.0010	106	70	130			
Arsenic		0.539	mg/L	0.0010	108	70	130			
Barium		0.541	mg/L	0.050	100	70	130			
Beryllium		0.254	mg/L	0.0010	101	70	130			
Cadmium		0.251	mg/L	0.0010	100	70	130			
Chromium		0.504	mg/L	0.0050	101	70	130			
Cobalt		0.510	mg/L	0.0050	102	70	130			
Lead		0.522	mg/L	0.0010	104	70	130			
Molybdenum		0.506	mg/L	0.0010	101	70	130			
Selenium		0.492	mg/L	0.0018	98	70	130			
Thallium		0.500	mg/L	0.00050	100	70	130			
Lab ID: **B17090709-001BMSD**	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170915A			09/15/17 18:32	
Antimony		0.524	mg/L	0.0010	105	70	130	1.1	20	
Arsenic		0.550	mg/L	0.0010	110	70	130	1.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/20/17

Project: TMPA CCRR **Work Order:** B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 113553
Lab ID: **B17090709-001BMSD**	11	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170915A				09/15/17 18:32
Barium		0.536	mg/L	0.050	99	70	130	0.9	20	
Beryllium		0.253	mg/L	0.0010	101	70	130	0.4	20	
Cadmium		0.251	mg/L	0.0010	101	70	130	0.3	20	
Chromium		0.504	mg/L	0.0050	101	70	130	0.2	20	
Cobalt		0.508	mg/L	0.0050	101	70	130	0.4	20	
Lead		0.504	mg/L	0.0010	101	70	130	3.4	20	
Molybdenum		0.492	mg/L	0.0010	98	70	130	2.8	20	
Selenium		0.490	mg/L	0.0018	98	70	130	0.3	20	
Thallium		0.482	mg/L	0.00050	96	70	130	3.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency **Report Date:** 09/20/17

Project: TMPA CCRR **Work Order:** B17090709

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV202-B_170912B	
Lab ID: **ICV**		Initial Calibration Verification Standard							09/12/17 13:45	
Mercury		0.00191	mg/L	0.00010	96	90	110			
Method: **E245.1**									Batch: 113565	
Lab ID: **MB-113565**		Method Blank				Run: HGCV202-B_170912B			09/12/17 13:50	
Mercury		ND	mg/L	1E-06						
Lab ID: **LCS-113565**		Laboratory Control Sample				Run: HGCV202-B_170912B			09/12/17 13:52	
Mercury		0.00193	mg/L	0.00010	96	85	115			
Lab ID: **B17090709-009BMS**		Sample Matrix Spike				Run: HGCV202-B_170912B			09/12/17 14:13	
Mercury		0.00170	mg/L	0.00010	85	70	130			
Lab ID: **B17090709-009BMSD**		Sample Matrix Spike Duplicate				Run: HGCV202-B_170912B			09/12/17 14:15	
Mercury		0.00182	mg/L	0.00010	91	70	130	6.6	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Texas Municipal Power Agency B17090709

Login completed by:	Siobhan H. Coop	Date Received:	9/11/2017
Reviewed by:	BL2000\cindy	Received by:	shc
Reviewed Date:	9/11/2017	Carrier name:	FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 3.3°C and shipping container 2 was 2.1°C.

The 3rd shipping container with samples MNW-15 and APMW-6 was received on 9/11/17 at 09:15 by Siobhan Coop at 10.0°C on ice from Fedex Express.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information *(Billing information)*

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information *(if different than Account Information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

★ AP PZ-4: no radium samples collected.

ALL ANALYSIS EXCEPT RAD CHEM ON THIS WORK ORDER 9/11/17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	S. Macon
Sampler Phone	512-795-0360
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Schedule 1	Schedule 2	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	SFL MW-7	9-7-17	1040	4	W	X	X			817090789-001
2	MNW-15		1200							-002
3	EQBK/SCM/090717		1300							-003
4	MNW-18		1355							-004
5	MNW-16		1450							-005
6	MNW-11		1600							-006
7	AP PZ-4		1720	2						-007
8	AP MW-6		1810	4						-008
9	DUP-1		—	4						-009
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Sam Macon	9/08/17 @ 1300	Samuel C. Macon			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					9/11/17	0800

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

ANALYTICAL SUMMARY REPORT

October 04, 2017

Texas Municipal Power Agency
PO Box 7000
Bryan, TX 77805-7000

Work Order: B17090710 Quote ID: B3997 - CCRR

Project Name: TMPA CCRR

Energy Laboratories Inc Billings MT received the following 8 samples for Texas Municipal Power Agency on 9/11/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17090710-001	SFL MW-7	09/07/17 10:40	09/11/17	Ground Water	Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
B17090710-002	MNW-15	09/07/17 12:00	09/11/17	Ground Water	Same As Above
B17090710-003	EQBK/SCM/090717	09/07/17 13:00	09/11/17	Ground Water	Same As Above
B17090710-004	MNW-18	09/07/17 13:55	09/11/17	Ground Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Texas Municipal Power Agency
Project: TMPA CCRR
Work Order: B17090710

Report Date: 10/04/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090710-001
Client Sample ID: SFL MW-7

Report Date: 10/04/17
Collection Date: 09/07/17 10:40
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.54	pCi/L				E903.0	10/01/17 10:34 / eli-ca
Radium 226 precision (±)	0.18	pCi/L				E903.0	10/01/17 10:34 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	10/01/17 10:34 / eli-ca
Radium 228	2.4	pCi/L				RA-05	09/25/17 14:59 / eli-ca
Radium 228 precision (±)	1.0	pCi/L				RA-05	09/25/17 14:59 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/25/17 14:59 / eli-ca
Radium 226 + Radium 228	2.9	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090710-002
Client Sample ID: MNW-15

Report Date: 10/04/17
Collection Date: 09/07/17 12:00
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.31	pCi/L				E903.0	10/01/17 10:34 / eli-ca
Radium 226 precision (±)	0.14	pCi/L				E903.0	10/01/17 10:34 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	10/01/17 10:34 / eli-ca
Radium 228	1.6	pCi/L				RA-05	09/25/17 14:59 / eli-ca
Radium 228 precision (±)	0.98	pCi/L				RA-05	09/25/17 14:59 / eli-ca
Radium 228 MDC	1.2	pCi/L				RA-05	09/25/17 14:59 / eli-ca
Radium 226 + Radium 228	1.9	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.2	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090710-003
Client Sample ID: EQBK/SCM/090717

Report Date: 10/04/17
Collection Date: 09/07/17 13:00
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	0.05	pCi/L	U			E903.0	10/01/17 12:15 / eli-ca
Radium 226 precision (±)	0.13	pCi/L				E903.0	10/01/17 12:15 / eli-ca
Radium 226 MDC	0.22	pCi/L				E903.0	10/01/17 12:15 / eli-ca
Radium 228	0.71	pCi/L	U			RA-05	09/25/17 16:36 / eli-ca
Radium 228 precision (±)	1.1	pCi/L				RA-05	09/25/17 16:36 / eli-ca
Radium 228 MDC	1.8	pCi/L				RA-05	09/25/17 16:36 / eli-ca
Radium 226 + Radium 228	0.8	pCi/L	U			A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.1	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.8	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR
Lab ID: B17090710-004
Client Sample ID: MNW-18

Report Date: 10/04/17
Collection Date: 09/07/17 13:55
DateReceived: 09/11/17
Matrix: Ground Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.5	pCi/L				E903.0	10/01/17 12:15 / eli-ca
Radium 226 precision (±)	0.37	pCi/L				E903.0	10/01/17 12:15 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	10/01/17 12:15 / eli-ca
Radium 228	5.6	pCi/L				RA-05	09/25/17 16:36 / eli-ca
Radium 228 precision (±)	1.4	pCi/L				RA-05	09/25/17 16:36 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/25/17 16:36 / eli-ca
Radium 226 + Radium 228	7.2	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 precision (±)	1.4	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	10/03/17 20:27 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR

Report Date: 10/03/17
Work Order: B17090710

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E903.0**									Batch: RA226-8664
Lab ID: **LCS-RA226-8664**	Laboratory Control Sample				Run: G5000W_170920B				10/01/17 10:33
Radium 226	9.6	pCi/L		95	80	120			
Lab ID: **MB-RA226-8664**	Method Blank				Run: G5000W_170920B				10/01/17 10:33
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: **B17090710-001AMS**	Sample Matrix Spike				Run: G5000W_170920B				10/01/17 10:34
Radium 226	15	pCi/L		59	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD recoveries are acceptable, the response is considered to be matrix relate The batch is approved.									
Lab ID: **B17090710-001AMSD**	Sample Matrix Spike Duplicate				Run: G5000W_170920B				10/01/17 10:34
Radium 226	17	pCi/L		68	70	130	15	20	S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD recoveries are acceptable, the response is considered to be matrix relate The batch is approved.									

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Texas Municipal Power Agency
Project: TMPA CCRR

Report Date: 10/03/17
Work Order: B17090710

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**									Batch: RA228-5610
Lab ID: **LCS-228-RA226-8664**	Laboratory Control Sample				Run: TENNELEC-3_170920C				09/25/17 14:59
Radium 228	9.2	pCi/L		87	80	120			
Lab ID: **MB-RA226-8664**	Method Blank				Run: TENNELEC-3_170920C				09/25/17 14:59
Radium 228	0.7	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: **B17090710-005AMS**	Sample Matrix Spike				Run: TENNELEC-3_170920C				09/25/17 14:59
Radium 228	26	pCi/L		106	70	130			
Lab ID: **B17090710-005AMSD**	Sample Matrix Spike Duplicate				Run: TENNELEC-3_170920C				09/25/17 14:59
Radium 228	23	pCi/L		93	70	130	12	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Work Order Receipt Checklist

Texas Municipal Power Agency B17090710

Login completed by:	Siobhan H. Coop	Date Received:	9/11/2017
Reviewed by:	BL2000\cindy	Received by:	shc
Reviewed Date:	9/11/2017	Carrier name:	FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The Temperature Blank temperature for shipping container 1 was 3.3°C and shipping container 2 was 2.1°C.

The 3rd shipping container with samples MNW-15 and APMW-6 was received on 9/11/17 at 09:15 by Siobhan Coop at 10.0°C on ice from Fedex Express.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Amec Foster Wheeler
Contact	Greg Seifert
Phone	512-795-0360
Mailing Address	3755 S. Capital of TX Hwy. #375
City, State, Zip	Austin, TX 78704
Email	greg.seifert@amecfw.com
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other _____

Comments

★ AP PZ-4: no radium samples collected.

Rad chem analysis only on this work order SE 9/11/17

Project Information

Project Name, PWSID, Permit, etc.	Client: TMPA Project: CCRR
Sampler Name	S. Macon
Sampler Phone	512-795-0360
Sample Origin State	TX
EPA/State Compliance	☒ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: Schedule 1	Analysis Requested: Schedule 2	Analysis Requested: See Attached	RUSH TAT	ELI-LAB ID (Laboratory Use Only)
1	SFL MW-7	9-7-17	1040	4	W	X	X			B17090710-001
2	MNW-15		1200							-002
3	EQBK/SCM/090717		1300							-003
4	MNW-18		1355							-004
5	MNW-16		1450							-005
6	MNW-11		1600							-006
7	AP PZ-4		1720	2						LOGGED SEPARATE
8	AP MW-6		1810	4						-007
9	DUP-1		—	4						-008
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Sam Macon	9/08/17 @ 1300	Samuel C. Macon			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time 9/11	Signature 17 0800

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.